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TRANSACTIONS

OF THE

AMERICAN

ENTOMOLOGICAL SOCIETY,

AND

PROCEEDINGS

OF THE

ENTOMOLOGICAL SECTION

OF THE

ACADEMY OF NATURAL SCIENCES.

VOL. VIII.

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PROCEEDINGS
OF THE
MONTHLY MEETINGS
OF THE
ENTOMOLOGICAL SECTION
OF THE
ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA.

JANUARY 9, 1880.

Director Dr. LECONTE in the chair.

The Publication Committee laid upon the table signatures 1 to 3 (pages 1 to 24) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Zoological Society of London, 1879, Part 3. From the Society.

Entomologist's Monthly Magazine, Nos. 187 and 188. From the Conductors.

Transactions of the American Entomological Society, vol. vii, No. 4. From the Publication Committee.

Bulletin of the Brooklyn Entomological Society, vol. ii, No. 4. From the Society.

North American Entomologist, vol. i, No. 7. From the Editor.

Canadian Entomologist, vol. xi, No. 12. From the Editor.

Journal of the Cincinnati Society of Natural History, vol. ii, No. 2. From the Society.

Le Naturaliste Canadien, vol. xi, No. 132. From the Editor.

Memoirs of the Boston Society of Natural History, vol. iii, Part 1, Nos. 2 and 3. From the Society.

Compte-Rendu, Société Entomologique de Belgique, Série ii, Nos. 68—70. From the Society.

Tijdschrift voor Entomologie, 1879, Nos. 1 and 2. From the Netherland Entomological Society.

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Monographic revision of the species of Cremastochilus and synopsis of the Euphoriæ of the United States, by Geo. H. Horn, M. D. From the Author.

The Coleoptera of the Alpine Rocky Mountain Regions, Part 2, by J. L. LeConte, M. D. From the Author.

Notice of a new Pauropod, by J. A. Ryder. From the Author.

FEBRUARY 13, 1880.

Vice-Director Dr. HORN in the chair.

The Publication Committee laid upon the table signatures 4 to 7 (pages 25 to 56) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Boston Society of Natural History, vol. xx, pp. 273—320. From the Society.

American Entomologist, vol. i, No. 1. From the Editors.

North American Entomologist, vol. i, No. 8. From the Editor.

Proceedings of the Academy of Natural Sciences, 1879, Part 2. From the Academy.

Psyche, vol. iii, No. 69. January, 1880. From the Editors.

Le Naturaliste Canadien, vol. xii, No. 1. From the Editor.

Compte-Rendu Société Entomologique de Belgique, Série ii, No. 72. From the Society.

Annual Report of the Curator of the Museum of Comparative Zoology, 1878—79. From the Author.

The American Bembecidæ, Tribe Stizini, by W. H. Patton. From the Author.

List of a Collection of Aculeate Hymenoptera made by S. W. Williston in Northwestern Kansas, by W. H. Patton. From the Author.

Generic arrangement of the Bees allied to Melissodes and Anthophora, by W. H. Patton. From the Author.

The Cotton Worm, by C. V. Riley. From the Author.

Insects from the Tertiary Beds of the Nicola and Similkameen Rivers, British Columbia, by S. H. Scudder. From the Author.

MARCH 12, 1880.

Vice-Director Dr. HORN in the chair.

The Publication Committee reported favorably the following paper presented at the last meeting for publication in the Transactions of the American Entomological Society:—

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"Descriptions of some monstrosities observed in North American Coleoptera," by Horace F. Jayne.

Permission was granted to Dr. Horn to divide into two parts a paper presented by him at the meeting in September, 1879, the titles of which he announced to be as follows:

"Notes on some genera of Cerambycidæ, with descriptions of new species."

"Contributions to the Coleopterology of the United States."

Dr. Horn called the attention of the members to a pamphlet on the table from A. Preudhomme de Borre, on the "Best arrangement of boxes and cartons of collections of insects," (Ann. Soc. Ent. Belg. Apl. 1879), on which the following remarks were made:

Mr. de Borre begins his paper by admitting that the arrangement of boxes on their edge or end has advantages over any other in the economy of space and the ease in consulting the cabinet.

The dangers of such a course are summed up in a few words: 1, specimens become loose and fall breaking themselves and their neighbors; 2, or they turn on their pins with similar results; 3, infected specimens are not readily detected by the dust. These certainly seem like serious objections and to properly understand them we must consider them from the standpoint from which Mr. de Borre speaks.

The boxes in use in France and Belgium are for the most part what we know as the "French cartons," made of heavy pasteboard about two inches and a half deep and eight by ten, all in outside measure. These are lined at bottom with papier-mache, peat or cork, the last seems the most uncommon from its greater cost, and from my experience with these boxes is rarely used in sufficient thickness or in very good quality. The other two articles are objectionable from their lack of elasticity and a pin-hole once made remains the same, while the peat has the additional bad quality of slightly corroding and adhering to the pins. The material of which the cartons is made is objectionable for several reasons, it is heavy, it will not retain its shape, the bottoms becoming convex and the sides of the lid spreading, the material is hard and should a pin be pushed through the cork or other lining the point is always turned in a hook.

The pin used by the French and Belgians is long measuring from 1.5 to 1.64 of an inch (37.5—42 mm.), while the English go to the other objectionable extreme of using a pin but little longer than an ordinary toilet pin.

The long pin, as justly remarked by Mr. de Borre, places the speci-

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men at the end of a lever and the slight jarring of the boxes often repeated tends to loosen the specimen or cause it to turn. It seems to me that the remedy for falling or turning specimens is easy to be applied. *Discard all material for lining but cork* and that of at least one-fourth of an inch (6—7 mm.) in thickness, and (at least the bottom of) the box of such wood that the pin may partly enter it without bending the point, and in the second place *use a shorter pin.*

Should the pin remain firm in the cork the insect will sometimes turn on the pin as its axis. This is obviated by nearly all American entomologists by using a little shellac dissolved in alcohol at the point where the pin passes through the body beneath. I have never known specimens to turn if so treated. Should the specimen be large and bulky as in *Dynastes* or *Strategus*, it has been my custom to flatten the pin slightly by a few light blows of a hammer before inserting it, using the shellac also.

The presence of infection is readily detected in a vertical box as the dust always falls on the head of the specimen below the infected one.

It seems, therefore, that the troubles about which Mr. de Borre writes, are for the most part attributable to the boxes and pins rather than to the particular position in which the boxes are placed in the cabinet.

To my mind the objections to a horizontal arrangement of boxes are: the boxes must be placed one on the other on a shelf or else many shelves must be made to accommodate them. In the former case it must be evident that in handling one box in a pile it is necessary to disturb probably several others at a certain amount of personal inconvenience, and causing an additional amount of wear on the boxes and injury to specimens without any adequate compensation. Should we increase the number of shelves to avoid piling the boxes we add greatly to the amount of space occupied as well as to the expense for cabinet work.

After considerable experiment and observation I have adopted a box made of well-seasoned pine, nine by fourteen inches and two inches deep, all outside measure. The lid is secured at the back by two hinges and when closed fastened by a small brass hook at each end. The lid and bottom when the box is closed seem equal, and the depth is given to the bottom by the inner frame on which the lid tightly fits at all points. The lining of the bottom is cork not less than a fourth of an inch covered with thin glazed paper. The outside of the box may be entirely plain or painted, or stained to suit the tastes of the owner. These boxes are placed on shelves a little more than

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nine inches apart so that the boxes may rest on the long edge, the shelves may be enclosed in any sort of closet or cabinet. In these boxes the specimens are arranged in the following manner: faint pencil lines are drawn from one side of the box to the other dividing it into five or six equal portions according to the size of the specimens, beginning at the upper left corner of the box I place say four specimens side by side and so on down that column and then the other divisions in succession.

Such an arrangement has given me greater satisfaction than any other I have tried. In justice to Mr. E. W. Janson of London, I must state that the pattern of the box is due to him, but experience has taught me that only those boxes will stand our variable atmosphere which are made of native lumber and seasoned and made here.

The pin now used by me and very nearly all of my friends and correspondents is that made by Klaeger of Berlin, and is in length 1.34—1.40 inch, (34—35 mm.)

The question of the pin and box is almost the first difficulty met by every one at the outset of his entomological career, and as all of us have been compelled to find out for ourselves what seemed to be best, I have thought it not improper to place before the entomologists of America the results of nearly twenty years of experiment and expense.

Mr. E. T. Cresson exhibited specimens of three new species of hymenopterous insects contained in the collection of the American Entomological Society, and described them as follows:—

Aulacus editus.—♀.—Black; head subglobose, broad behind the eyes, cheeks and back of ocelli smooth and shining, face pubescent, vertex beneath ocelli feebly punctured; palpi pale, except base; antennæ rather longer than head and thorax, scape sometimes ferruginous beneath; thorax above coarsely transversely wrinkled, mesothorax subpyramidal in profile, anterior and lateral margins of middle lobe acutely carinate especially at angles, broadly rather deeply emarginate medially; wings hyaline, stained with dusky yellow, nervures and stigma black; legs ferruginous, tarsi sometimes yellowish, coxæ and trochanters black, posterior femora sometimes tinged with fuscous; abdomen as long as head and thorax, ferruginous except base of first segment; ovipositor as long as body. Length .55 inch.

Hab.—Nevada, (Morrison); California, (Edwards).

Aulacus abdominalis.—♀.—Black; head subglobose, broad behind the eyes, cheeks and back of ocelli smooth and shining, face pubescent, vertex beneath ocelli punctured; antennæ as long as head and thorax, entirely black; thorax above coarsely transversely wrinkled, mesothorax in front subpyramidal in profile, the anterior margin prominent, carinate and broadly not deeply emarginate medially; wings hyaline, nervures and stigma black; legs

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black, four anterior femora castaneous, their tibiæ and all the tarsi dull ferruginous; abdomen about as long as thorax, dark ferruginous, polished, base of first segment blackish, apical segments sometimes more or less dusky; ovipositor as long as the body. Length .50 inch.

Hab.—Georgia, (Morrison). Closely allied to *editus*.

Aulacus minor.—♀.—Small, black; head smooth and polished, broad behind eyes; antennæ as long as head and thorax, scape beneath dull red; thorax above transversely wrinkled, the mesothorax gibbous in front, anterior lobe emarginate medially as in *abdominalis;* tegulæ piceous; wings hyaline, slightly dusky at tips, nervures and stigma black; legs mostly ferruginous, coxæ, trochanters and posterior tibiæ black, sometimes the posterior legs are almost entirely fuscous or black; abdomen as long as head and thorax, ferruginous, shining, base of first and two or three apical segments, black; ovipositor as long as body. Length .30 inch.

♂.—Abdomen mostly black, the sides of the first, second and third segments more or less ferruginous. Length .30 inch.

Hab.—Nevada, (Morrison).

The Publication Committee laid upon the table signatures 8 to 11 (pages 57 to 88) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced:—

Entomologist's Monthly Magazine, No. 189. From the Conductors.

Canadian Entomologist, vol. xii, Nos. 1 and 2. From the Editors.

North American Entomologist, vol. i, Nos. 1 and 6. From the Editor.

Bulletin of the Brooklyn Entomological Society, vol. ii, Nos. 5—9. From the Society.

Psyche, vol. iii, No. 70. February, 1880. From the Editors.

Journal of the Cincinnati Society of Natural History, vol. ii, No. 3. From the Society.

Annales de la Société Entomologique de Belgique, vol. xxii, No. 3. From the Society.

Deutsche Entomologische Zeitschrift, vol. xxiii, Part 2. From the Entomological Society of Berlin.

The Food of Birds, (The Thrush Family), by S. A. Forbes. From the Author.

De la meilleure disposition a donner aux Caisses et Cartoons des collections d'Insectes, par A. Preudhomme de Borre. From the Author.

Étude sur les espèces de la Tribu des Féronides qui se rencontrent en Belgique, par A. Preudhomme de Borre. From the Author.

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Notice sur les espèces des Tribus des Panagéides, des Loricérides, des Licinides, des Chlæniides, et des Broscides, qui se rencontrent en Belgique, par A. Preudhomme de Borre. From the Author.

Note sur le Breyeria Borinensis, par A. Preudhomme de Borre. From the Author.

APRIL 9, 1880.

Director Dr. LECONTE in the chair.

Dr. Horn called attention to an article by Mr. H. G. Hubbard, in the third number of the American Entomologist, in which the larva of *Anophthalmus* is described. While on a visit during last summer to the Museum of Comparative Zoology at Cambridge, Dr. Horn was shown a similar larva by Dr. Hagen, and there then appeared to be but little doubt that it belonged to a Staphylinide of the tribe Pæderini. The antennæ certainly have a structure resembling those of known Staphylinidæ, and totally unlike the Carabidæ. Mr. Hubbard was probably induced to so identify his larva by a figure given by Packard, (Amer. Nat. vol. x, pl. ii).

The Publication Committee laid upon the table signatures 12 to 15 (pages 89 to 120) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Academy of Natural Sciences of Philadelphia, 1879, Part 3. From the Academy.

Transactions of the Academy of Sciences of St. Louis, vol. iv, No. 1. From the Academy.

Journal of the Cincinnati Society of Natural History, vol. i, No. 3, vol. ii, Nos. 1 and 4. From the Society.

Bulletin of the Essex Institute, vol. xi, Nos. 10—12. From the Institute.

North American Entomologist, vol. i, No. 6. From the Editor.

Bulletin of the Brooklyn Entomological Society, vol. i, No. 1. From the Society.

Canadian Entomologist, vol. xii, No. 3. From the Editor.

Psyche, vol. i, complete. By purchase.

Psyche, vol. ii, Nos. 63, 65—68. From the Editors.

American Entomologist, vol. iii, Nos. 2 and 3. By purchase.

Le Naturaliste Canadien, Nos. 133 and 134. From the Editor.

Entomologists' Monthly Magazine, No. 190. From the Conductors.

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Journal of the Royal Microscopical Society, vol. ii, Nos. 4—7, vol. iii, Nos. 1 and 2. From the Society.

Annual Report of the Entomological Society of the Province of Ontario for 1879. From the Society.

The Chinch-Bug, by Cyrus Thomas, 1879. From the Author.

On the Tenthredinidæ and Uroceridiæ of North America, by Norton and Cresson, 1880. From the Authors.

Descriptions of some new Tineina, with Notes on a few old species, by V. T. Chambers. From the Author.

MAY 14, 1880.

Director Dr. LECONTE in the chair.

After presenting for publication, in the Transactions of the American Entomological Society, a paper on the Silphidæ, Dr. Horn gave in brief the objects and scope of the paper, and explained the reasons which have induced him to adopt a different arrangement of the family. The desire of the author is to make known, in as much detail as seemed necessary, the species known to inhabit our fauna, and in so doing its scope has been extended so as to make such comparisons between foreign genera and our own as might be necessary to place both series in a clearer light.

In the primary division of the family, it was found necessary to discard all reference to the trochanters, the character as used being very misleading and in fact useless. The structure of the coxal cavities and the coxæ afford the basis of the new arrangement proposed, which enables all the genera which have been considered aberrant to be placed in their true position.

In order to demonstrate the new system, it was proposed to give figures of all the genera with details, drawn in the greater part from nature, and in few instances copied. These drawings were exhibited to the members.

The Publication Committee laid upon the table signatures 16 to 18 (pages 121 to 144) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced :—

Proceedings of the Boston Society of Natural History, vol. xx, Part 3. From the Society.

Journal of the Cincinnati Society of Natural History, vol. iii, No. 1. From the Society.

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North American Entomologist, vol. i, No. 10. From the Editor.

Canadian Entomologist, vol. xii, No. 4. From the Editor.

Psyche, vol. iii, Nos. 70 and 71. From the Editors.

American Entomologist, vol. iii, Nos. 4 and 5. By purchase.

Proceedings of the Wisconsin Natural History Society for 1879. From the Society.

Entomologist's Monthly Magazine, Nos. 191 and 192. From the Conductors.

Eighth Report of the State Entomologist on the Noxious and Beneficial Insects of the State of Illinois, by Cyrus Thomas. From the Author.

Manual of the Apiary, by A. J. Cook, 1880. From the Author.

Biological and other notes on *Pseudococcus aceris*, by Emily A. Smith. From the Author.

List of the Coleoptera observed and collected in the vicinity of Buffalo, by O. Reinecke and F. Zesch. From the Authors.

Verhandlungen des naturforschenden Vereines in Brünn. Band xvi, 1877. From the Society.

Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien. Band xxviii, 1878. From the Society.

JUNE 14, 1880.

Director Dr. LECONTE in the chair.

The Publication Committee reported favorably the following paper presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"Synopsis of the Silphidæ of the United States, with reference to the genera of other countries," by Geo. H. Horn, M. D.

The Publication Committee laid upon the table signatures 19 to 21 (pages 145 to 168) of volume viii, of the Transactions of the American Entomological Society, also signature 1 (pages i to viii) of the Proceedings of the Section for 1880.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Davenport Academy of Natural Sciences, vol. ii, Part 2. From the Academy.

American Entomologist, vol. iii, No. 6. By purchase.

North American Entomologist, vol. i, No. 12. From the Editor.

Bulletin of the Brooklyn Entomological Society, vol. ii, Nos. 10—12. From the Society.

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Psyche, vol. iii, No. 72. From the Editors.

Canadian Entomologist, vol. xii, No. 5. From the Editor.

Le Naturaliste Canadien, No. 135. From the Editor.

Entomologists' Monthly Magazine, No. 193. From the Conductors.

Journal and Proceedings of the Royal Society of New South Wales, vol. xii, 1878. From the Society.

Proceedings of the Linnean Society of New South Wales, vol. iv, Parts 1 and 2. From the Society.

Entomologisk Tidskrift. Band i, Haft i, 1880. Af. Jacob Spangberg. From the Author.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, vol. v, Nos. 5—10. From the Society.

Bulletin de la Société d'Etudes Scientifiques de Lyon. 1874—79. From the Society.

Biological and other Notes on Coccidæ, by J. Duncan Putnam. From the Author.

Descriptions of some monstrosities observed in North American Coleoptera, by Horace F. Jayne. From the Author.

Report upon Cotton Insects, by J. Henry Comstock. From the Author.

General Guide to the Museum of the Boston Society of Natural History, by Alpheus Hyatt, Custodian. From the Author.

SEPTEMBER 10, 1880.

Director Dr. LECONTE in the chair.

The Publication Committee reported favorably the following paper presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"Synopsis of the Lampyridæ of the United States," by John L. LeConte, M. D.

Dr. Horn presented a list of the Coleoptera described by Mr. J. H. B. Bland, in the Proceedings of the Entomological Society of Philadelphia, with their synonymy.

It sometimes happens that species described in a loose manner are lost sight of after being recognized as synonyms by cotemporary students. When years have passed bibliographers discover these species in the books without any subsequent mention, and when types have been lost and tradition ceases the names are carried from generation to generation until they are finally dropped. The types of Mr. Bland's species remain in the collection of the American Ento-

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mological Society, and while the opportunity still exists of placing a proper value on them the present occasion is made use of for bringing them all together in one paper. The names in *italics* are synonyms.

Monilema lævigatum *Bl.* vol. i, p. 267.
M. subrugosum *Bl.* p. 268.
Desmocerus *elongatus* Bl. p. 269, is palliatus *Forst.*
Gaurotes abdominalis *Bl.* p. 270, is still retained as distinct, but I believe it to be merely *cyanipennis* Say, with a pale abdomen, such variations being common in Leptura.
Eburia Ulkei *Bl.* p. 270.
Eriphus Pearsalli Bl. p. 272, is Batyle suturalis (*Say*).
Crossidius *pulchrior* Bl. p. 272, is discoideus (*Say*).
Callidium albofasciatum Bl. p. 274, is Phymatodes varius *Fab.*
C. semicirculare Bl. p. 275, is a var. of P. varius *Fab.*
Cychrus Ridingsii Bl. p. 353, a good species.
Cyclocephala *lurida* Bl. p. 354, is immaculata *Burm.*
Corymbites fulvipes *Bl.* p. 354.
C. *nebraskensis* Bl. p. 355, is triundulatus *Rand.*
Cymatodera puncticollis *Bl.* p. 356.
Orthopleura texana *Bl.* p. 356.
Bembidium *Wingatei* Bl. vol. ii, p. 319, is oblongulum *Mann.* and belongs to Amerizus Chd.
Helops gracilis *Bl.* ibid.
Saperda Fayi *Bl.* p. 320.
Acmæops *incertus* Bl. p. 321, is bivittata *Say.*
Staphylinus capitatus *Bl.* vol. iii, p. 65. I have referred this to Leistotrophus.
Chrysobothris *purpurata* Bl. p. 66, is æneola *Lec.*
Cardiophorus *montanus* Bl. p. 67, is tumidicollis *Lec.*
Corymbites *brunnipes* Bl. p. 67, is morulus *Lec.*
C. nigricollis *Bl.* p. 68.
Pityobius *Billingsii* Bl. p. 69, is anguinus *Lec.*
Gaurotes Cressoni *Bl.* p. 69.
Meloe afer *Bl.* p. 70.
Lytta tarsalis Bl. p. 71, is Pomphopœa æenea (*Say*).
Chrysomela pallida *Bl.* p. 71.
Coccinella æthiops Bl. p. 72, is Exochomus marginipennis *Lec.*
Othnius fasciatus *Bl.* p. 253.
Pristoscelis ater Bl. p. 253.
P. fulvitarsis *Bl.* p. 254.
P. nigricornis *Bl.* p. 254, is Dolichosoma.
Pedilus cyanipennis *Bl.* p. 254, is a Corphyra.
Leptura *atrovittata* Bl. p. 255, is abdominalis *Hald.*
Epilachna *maculiventris Bl.* p. 254, is corrupta *Muls.*
Pterostichus *inornatus* Bl. vol. iv, p. 381, is protractus *Lec.*
P. *agrestis* Bl. 381, is caudicalis *Say.*
Necrophorus *Hecate* Bl. p. 382, a variety of guttula Mots.
Agrilus pulchellus *Bl.* p. 382.
Nyctobates sublævis Bl. p. 382, is Iphthimus serratus *Mann.* var.
Anthophylax mirificus *Bl.* p. 382.

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A. *venustus* Bl. p. 383, the female of mirificus *Bl.*
Leptura nigrolineata *Bl.* p. 383.
L. propinqua *Bl.* p. 384.

In a volume entitled "Petite Faune Entomologique der Canada-Coleopteres," published in Quebec by L'Abbe L. Provancher, the following species and genera are described.

Philonthus *longipennis* Prov. is sordidus *Grav.*
Micronychus (n. g.) *sulcatus* Prov. is Cyphomimus dorsalis *Horn.*
Erirhinus viridis Prov. is Phytonomus nigrirostris *Fab.*
Homogaster (n. g.) *quebecensis* Prov. is Piazurus subfasciatus *Lec.*
Leptura nitidipennis Prov. is Acmæops longicornis *Kby.*
L. lætifica *Lec.* does not occur in Can., the species intended is mutabilis *Nm.*
Anatis *canadensis* Prov. is 15-punctata *Oliv.*
Attelabus *maculatus* Prov. is rhois *Boh.*
Coptocycla *plicata* Boh. is erroneously determined and should be guttata *Oliv.* of which it is a variety.
Zilora nuda *Prov.*, Supplement 1877, p. 19, probably a distinct species but the name is not well chosen.
Metachroma cuprea *Prov.* I quote this on the authority of Mr. Austin, I do not know where it is described. It is however not a Metachroma from the specific name.

The following synonymy has been recently observed:

Amphycyrta simplicipes *Mann.* is a Simplocaria, and S. *inflata* Lec. is the same species.
Rhipiphorus bifoveatus *Horn.*—Trans. Am. Ent. Soc. 1875, p. 123. I mention this species to note its occurrence in Guatemala, and also that the description of *R. sordidus* Gerst. (Mon. 1855, p. 28), applies to it as far as it goes, but as there are important tarsal characters not mentioned by Gerstæcker, I feel unwilling to unite the two species, and I must await the decision of those who have at the same time access to my paper and veritable specimens of *sordidus*. If the two are identical the distribution is remarkable—Brazil, Guatemala and Illinois.

Dr. Horn also read the following

Note on HEMIPEPLUS Latr.

This genus was indicated and described by Latreille (Fam. nat. Regne Anim. p. 398), without however describing the species. The typical specimen passed to M. Reiche and bore the cabinet name *hemipterus* (fide Lacordaire). In the catalogue of his collection (ed. 3, p. 340), Dejean records the same insect under the name *Nemicelus marginipennis.*

In the Proceedings of the Academy of Natural Sciences of Philadelphia, 1854, p. 79, Dr. Leconte for the first time describes the species under the Dejeanian name from a specimen which we now know to be a female.

The Dejean specimen was in 1874 in the possession of Mr. E. W.

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Janson of London, through whose kindness I was enabled to study and make a sketch of it.

While on a visit to London during 1869—70, Dr. Leconte saw and named specimens in the cabinet of the British Museum which appear to have been males.

In the Ent. Mo. Mag. xiii, Nov. 1876, p. 121, Mr. C. O. Waterhouse publishes a note on Hemipeplus, and describes what he believes to be the true *H. marginipennis* Dej., with the following remarks:

"My object in describing this is, that I believe it to be quite distinct from the species described under the same name by Dr. Leconte, which he says is two-tenths of an inch in length, and of which there are specimens named by Dr. Leconte in the British Museum (from Florida) which only measure two-twelfths of an inch. The small specimens differ from the large one above described, in having the eyes less prominent; the head not immediately narrowed behind the eyes, but having, as it were, rectangular cheeks, the sides of the elytra less suddenly deflexed, and the deflexed portion not bounded above by a fine carina."

The following is the description by Mr. Waterhouse and for comparison I reproduce that by Dr. Leconte.

Hemipeplus (*Nemicelus*) **marginipennis** Dej.—"Valde elongatus et depressus, parallelus, testaceus, nitidus; capite cum oculis thorace paulo latiori, pone oculos subito angustato; thorace latitudine ½ longiori, lateribus antice rotundatis, postice subsinuatis, pone medium angustato, fovea utrinque prope basin impresso; elytris punctulatis, margine laterali infuscato. Long. 3 lin.; 5 mm." (Waterhouse).

"**Nemicelus marginipennis**, linearis, valde elongatus et depressus, pallide testaceus nitidus, capite cum oculis magnis thorace latiore, hoc latitudine fere duplo longiore, lateribus antice rotundatis, postice subsinuatis, pone medium angustato, fovea utrinque prope basin profunda impresso, elytris punctulatis vix striatis, margine laterali nigricante, apice truncatis. Long. 20; 4 mm." (Leconte).

I think it would be difficult to find two descriptions corresponding more closely when made by different persons at such an interval of time.

Before proceeding further the differences between the sexes will be given.

Male.—Smaller than the female, more opaque, more densely and finely punctulate. Head with hind angles distinctly prolonged behind the eyes, the latter being smaller than in the female but variable in size. First joint of antennæ oval, suddenly narrowed at base, not longer than the next two joints taken together. Thorax not longer than wide, apex very feebly emarginate, basal foveæ deep but not elongate, a vague but entire median channel. Elytra vaguely substriate at base, disc convex, the declivity at the sides not limited by an acute ridge, apices obliquely prolonged and at tip conjointly rounded. Last ventral segment scarcely longer than the preceding and regularly oval at tip. Last dorsal segment very slightly exposed beyond the elytra.

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Female.—Larger than the male, more shining, less densely punctulate. Eyes large and forming the hind angles of the head, larger and more prominent than in the male. First joint of antennæ in form of elongate cone, not suddenly narrowed at base and fully equal to the next three joints taken together. Thorax about one-third longer than wide, apex rather deeply emarginate, basal foveæ not deep but elongate, the median groove nearly obsolete. Elytra faintly substriate their entire length, the disc very flat and with a distinct sharply defined ridge extending from the humeri to the tip separating the disc from the declivity, apices squarely truncate. Last ventral segment distinctly longer than the preceding and very obtusely oval at tip. Last dorsal segment in great part visible beyond the elytra.

By the above sexual characters it will be evident that both Leconte and Waterhouse had females before them, and that the smaller specimens about which the latter author speaks are from the form of the head males.

In the Proc. Am. Philos. Soc. 1878, p. 360, Mr. E. A. Schwarz describes *Nemicelus microphthalmus* from a specimen which he calls a female. I have examined the type in the cabinet of Dr. Leconte and find that it is a male, and that it does not differ from any other small males of the typical form excepting that its eyes are smaller, and from an examination of at least seven males of this species I am fully convinced that the eyes vary in size in different individuals.

On the same page with the above Mr. Schwarz describes also *Nemicelus marginipennis*, in which he has unfortunately reversed the sexes.

The species varies in length from .13—.32 inch; 3¼—8 mm.

Mr. Schwarz also makes the following remark: "The genus *Nemicelus* was first described by Dr. Leconte, and is certainly distinct from *Hemipeplus*." The genus *Nemicelus* has never been described by any one and is perfectly synonymous with *Hemipeplus*.

The following is therefore the synonymy:

HEMIPEPLUS Latr., Fam. nat. 1825, p. 398.
Nemicelus Dej., Cat. ed. 3, p. 140.
Ochrosanis Pascoe, Journ. Ent. 1866, p. 443.
marginipennis Lec., (*Nemicelus*) Proc. Acad. 1854, p. 79.
hemipterus † Latr., (fide Lacordaire).
hemipterus † Dej., Cat. ed. 3, p. 140.
marginipennis † Dej., Cat. loc. cit.
Dohrnii ♀ Pascoe, (*Ochrosanis*) loc. cit. pl. 18, fig. 7.
marginipennis ♀ Waterh., Ent. Mo. Mag. 1876, xiii, p. 121.
Dejeanii Waterh., loc. cit. (name suggested).
microphthalmus ♂ Schwarz, (*Nemicelus*) Proc. Am. Philos. Soc. 1878, p. 360.

In concluding I must ask indulgence for having consumed so much space in the development of the synonymy of one species, but as there has been so much misunderstanding of the sexual differences and the

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synonymy has thereby been unnecessarily increased, the correction of all the errors at one time must be my only apology.

Mr. E. T. Cresson announced the death of Mr. James Ridings, a member of the Section and one of the founders of the American Entomological Society.

The following biographical notice was presented:

James Ridings was born at Bolton-le-Moors, Lancashire, England, April 30, 1803, died in Philadelphia, July 29, 1880, aged 77 years. His early years present the usual uneventful history of an English boy, and his educational opportunities were such as could be obtained in the parish school. At the early age of 12 years he showed a decided interest in the observation of natural objects, and he aided himself by association with others of similar tastes in his native place. His text books were a few odd volumes of Linnæus and Cuvier, from which he laid the foundation of the knowledge and pleasure of after years. In 1830 with a wife and family he came to this city and engaged in the manufacture of hand-looms and lathes, hand-loom weaving being then a very prosperous industry. He soon became acquainted with Drs. Rush and McClellan who knowing his tastes urged him to pursue his studies and gave him every encouragement. He continued collecting in this vicinity and by his example stimulated others and thus assisted in forming the nucleus of the Entomological Society of Philadelphia, which was founded in 1859, the name of which was subsequently changed to the American Entomological Society.

He did not confine himself to this vicinity in collecting but made numerous journeys more or less distant, to Colorado and Kansas in 1864, Georgia in 1865, and many times to the Shenandoah Valley of Virginia, which was always a favorite locality with him.

Mr. Ridings was always glad to be of assistance to others and many among us remember his kindly advice and gifts of specimens. Distrustful of his own ability and naturally retiring he never entered the field as a writer but allowed the numerous new species discovered by him to be made known by others. As the infirmities of advanced age bore gradually more heavily upon him and feeling that his period of activity had passed he distributed his cabinet among younger workers in the field.

Although not a young man at the time of the organization of our Society, he lived to see it firmly established and occupying a prominent position among kindred societies. He was for a time Vice-President of the Society and for several years Curator of its cabinet.

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The Publication Committee laid upon the table signatures 22 to 33 (pages 169 to 264) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Academy of Natural Sciences, 1880, Part 1. From the Academy.

Psyche, vol. iii, Nos. 73 and 74. From the Editor.

Canadian Entomologist, vol. xii, Nos. 6 and 7. From the Editor.

Le Naturaliste Canadien, vol. xii, No. 136. From the Editor.

Transactions of the Entomological Society of London, 1879. From the Society.

Proceedings of the Linnean Society of New South Wales, vol. iv, part 3. From the Society.

Bulletin of the Brooklyn Entomological Society, vol. iii, No. 2. From the Society.

American Entomologist, vol. iii, Nos. 7 and 8. By purchase.

Journal of the Cincinnati Society of Natural History, vol. iii, No. 2. From the Society.

Entomologist's Monthly Magazine, Nos. 194 and 195. From the Conductors.

Proceedings of the Zoological Society of London, 1879, part 4, 1880, part 1. From the Society.

Journal of the Royal Microscopical Society, vol. iii, Nos. 3 and 4. From the Society.

Tijdschrift voor Entomologie, vol. xxii, parts 3 and 4. From the Netherland Entomological Society.

Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien, vol. xxix, 1880. From the Society.

Annales de la Société Entomologique de Belgique, vols. xix and xxi, and part 4 of xxii. From the Society.

Ninth Report of the State Entomologist on the Noxious and Beneficial Insects of the State of Illinois, by Cyrus Thomas. From the Author.

The Hessian-Fly, by A. S. Packard Jr, M. D. From the Author.

On some new and little known species of Tineidæ, by Thomas, Lord Walsingham. From the Author.

Lepidoptera Heterocera in the British Museum, Part iv. From the Trustees.

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October 8, 1880.

Vice-Director Dr. Horn in the chair.

The Publication Committee laid upon the table signatures 34—37 (pages 265—296) of volume viii, of the Transactions of the American Entomological Society, also signature 2 (pages ix—xvi) of the Proceedings of the Section for 1880, printed since the last meeting.

Dr. Horn stated that during the past summer he had received from Mr. W. H. Ashmead a number of species of coleoptera collected in the Florida Keys, among which were several which had not been before known to occur within our faunal limits.

Hister (*Omalodes*) Klugii *Mars.*

Rutela formosa *Burm.*

Polycesta angulosa *Duval.*

Adelocera mexicana? *Caud.*

Stenodontes exsertus *Oliv.*

Brenthus anchorago *Fab.*

These are all found in Cuba excepting the Adelocera, and of this comparison will be necessary to determine positively its identity.

Dr. Horn also stated that he had observed the following synonymy while preparing, at the request of Mr. F. G. Schaupp, a synoptic table of Dicælus for publication in the Bulletin of the Brooklyn Entomological Society.

Dicælus dilatatus *Say, Dejeanii* Dej.

D. elongatus *Dej., simplex* Dej., *opacus* ‡ Lec.

D. ambiguus *Ferté, opacus* Ferté, *turbulentus* Lec.

Gyascutus obliteratus *Lec.*, has been received by Mr. Ulke from North Carolina. The specimens are, however, smaller than those from California and the sculpture less rugose.

On p. xiii of these "Proceedings" the measurement of *Nemicelus marginipennis* Lec., should be 5 mm.

Mr. E. T. Cresson exhibited specimens of three species of hymenoptera, which he characterized as follows:

Rhitigaster bicolor.—♂ ♀.—Black, shining, sparsely clothed with a short, whitish pubescence; face with a more or less deep longitudinal impression on each side; mesothorax with the longitudinal impressed lines deep and crenulated, middle lobe, as well as sometimes the lateral ones, with a shallow longitudinal groove; base of scutellum deeply excavated, the excavation divided in the middle by a sharp ridge; metathorax generally more or less yellowish-ferruginous, sometimes entirely black, rugose, the disk with two sharply defined longitudinal carinæ; tegulæ black or fuscous; wings fuscous or fusco-hyaline; legs black, the posterior pair sometimes fuscous, with the

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base of tarsi pale, the four anterior tarsi often varied with pale testaceous; abdomen entirely ferruginous, longitudinally rugose, first segment with two sharply defined longitudinal carinæ, gibbous at base, and continued on to the second, but becoming obsolete before reaching the apex of the segment. Length .23—.26 inch.

Var. ♂.—Posterior legs yellow-ferruginous, trochanters, tips of femora and of tibiæ, and the tarsi except base beneath, black.

Hab.—Massachusetts, New York, Pennsylvania.

Stephanus cinctipes.—♀.—Black; labrum, narrow band at base of all the tibiæ, and apical third, except extreme tip, of the ovipositor sheaths, white; tarsi testaceous, paler at base; trochanters, apex of first abdominal segment above and most of the second and third segments, ferruginous; in front of ocelli a sharp semicircular carina, toothed in the middle and on each side; face transversely rugose; cheeks nearly smooth; immediately back of ocelli a series of sharp transverse ridges, sometimes this part is tinged with dull ferruginous; mesothorax finely, transversely wrinkled, the impressed longitudinal lines composed of deep pits; pleura and metathorax roughly punctured, the former less so and shining; middle of scutellum smooth and polished; tegulæ dull testaceous; wings pale fuscous toward tips, an angular subhyaline band, commencing at base of stigma, apex of wings paler than beneath stigma; all the tarsi 5-jointed, the penultimate joint with a long tufted process at tip beneath; anterior tarsi double the length of their tibiæ and very slender; posterior coxæ large and toothed above near apex, their femora with two large teeth beneath, and a number of small unequal teeth between and on either side of them; their tibiæ not much thickened toward tip and not dilated; their tarsi about two-thirds the length of the tibiæ, with the first joint rather longer than the second, which is about equal in length with the third; abdomen smooth and polished, except the first segment which is finely roughened, and not longer than the posterior coxæ; ovipositor about double the length of the body. Length .55—.75 inch.

Hab.—Washington Territory, (Morrison).

Gorytes Smithii.—♀.—Black, shining; clothed with a brown sericeous pile; narrow line on anterior orbits, apex of labrum and spot on mandibles, yellow; head sparsely punctured, palpi, scape and base of flagellum beneath yellowish-ferruginous; mesothorax and pleura smooth, impunctured; line on prothorax, sides of mesothorax obscurely, tubercles and apical margin of scutellum, yellow; metathorax impunctured, clothed with erect pale brownish pubescence, a deep longitudinal medial furrow extending from base to apex, interrupted at tip of the triangular enclosed space by a deep fovea; wings uniformly dark fuliginous, second recurrent nervure confluent, or nearly so, with the second transverse cubital nervure; legs yellowish-ferruginous, coxæ, trochanters, posterior femora above, and spot or line on two anterior pairs black or fuscous; abdomen subpetiolated, smooth and shining, the first segment, except extreme base, yellow. Length .55 inch.

Hab.—Illinois. (Miss E. A. Smith).

The following additions to the Library of the American Entomological Society were announced:—

Canadian Entomologist, vol. xii, No. 8. From the Editor.

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Journal of the Cincinnati Society of Natural History, vol. iii, No. 3. From the Society.

American Entomologist, vol. iii, No. 9. By purchase.

Le Naturaliste Canadien, vol. xii, No. 137. From the Editor.

Entomologists' Monthly Magazine, No. 196. From the Conductors.

NOVEMBER 12, 1880.

Vice-Director Dr. HORN in the chair.

The Publication Committee laid upon the table signatures 38—41 (pages 297—322) of volume viii, of the Transactions of the American Entomological Society, printed since the last meeting.

Dr. Horn stated that, through the kindness of Mr. E. P. Austin of Boston, he had been presented with a specimen collected in Massachusetts which agrees exactly with Say's description of *Cetonia vestita*, and on comparison does not differ from the *C. hirtella* Linn., of Europe. The specimen is one of a small number collected last year, and is as far as he knew the first recorded appearance of the insect since the specimen received by Say. He was not prepared to say that these occurrences warrant us in placing the species in our list as a member of our fauna, while its introduction would make it necessary to discuss, on this side of the Atlantic, the relative value of the numerous genera made at the expense of Cetonia, or else to call the species *Euphoria hirtella* in this country and *Tropinota hirtella* in Europe.

E. californica Lec., has been determined by comparison to be *Glyciphana jucunda* Fald., (var. *argyrosticta* Burm.), and was described from a specimen received from California, the history of which could not be obtained.

While considering the Cetonia the question might be asked, whether it is really proper to add to our lists well known foreign species which are found here under circumstances which lead us to infer that each occurrence may be an introduction through commerce. Prominent in this number is *Licinus silphoides*, which Dr. Horn did not believe had ever gone through its life history from egg to imago in this country.

Dr. Horn also remarked that while looking over a number of South African Cicindelæ in the collection of Mr. Schaupp, he was struck with the general resemblance of the type of elytral marking to that described by Dr. Leconte in *C. Magdalenæ*, the specimen being in the Oxford Museum and said to have been obtained from North Carolina turpentine. This species therefore, seems to need a little further in-

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vestigation, and it is possible that insects from very remote regions may be mingled in the refuse strainings in varnish factories, from the melting of gums and rosins from remote parts of the world.

Mr. E. T. Cresson presented the following table of characters as an aid in the separation of our species, thus far known, of the genus

SAPYGA Latr.

1.—Vertex with six smooth raised spots; ocelli small, indistinct; pale line on upper inner orbits more or less raised or blistered; apex of antennæ similar in the sexes.—(EUSAPYGA).

Legs ferruginous.....1. **rubripes** n. sp. ♂ ♀ (Tex.)

Legs black, tibiæ and tarsi mostly yellow or white.

Mandibles and antennæ entirely black, the yellow band on third abdominal segment interrupted into spots...2. **proxima** n. sp. ♂ (Col.)

Mandibles more or less yellow, antennæ pale fuscous or testaceous beneath; the pale bands on abdomen uninterrupted.

Markings of body lemon-yellow, venter with very broad, uninterrupted bands; clypeus entirely yellow.

3. **verticalis** n. sp. ♀ (Nev.)

Markings of body white, venter black with lateral white spots; clypeus with an arcuate white line on anterior margin.

4. **californica** n. sp. ♂ (Cal.)

Legs entirely black except a pale line on middle tibiæ above; abdomen above with continuous white bands...5. **nigripes** n. sp. ♂ (Nev.)

2.—Vertex without smooth raised spots; ocelli distinct; pale line on inner orbits not raised or blistered; apex of antennæ dissimilar in the sexes, that of the ♂ more or less thickened, with the terminal joint much smaller than the penultimate.—(SAPYGA).

Abdomen and legs entirely black.....6. **aculeata** Cress. ♂ ♀ (Col.)

Abdomen with pale spots or bands.

Legs black with a white spot or line at base of tibiæ; abdomen with lateral white spots, venter immaculate...7. **pumila** n. sp. ♀ (Nev.)

Legs black, tibiæ more or less pale above.

Posterior margin of second abdominal segment above entire; anterior angles of prothorax obtuse; clypeus with a transverse white spot.....8. **Martinii** Sm. ♀ (Can.)

Posterior margin of second abdominal segment above emarginate medially; anterior angles of prothorax acute; clypeus with a sublunate white spot on each side.....9. **emarginata** n. sp. ♀ (Col.)

Legs black, tibiæ entirely yellow.

Space between eyes and base of mandibles narrow.

Metathorax black, immaculate.

Coxæ and two basal segments of abdomen entirely black.

Second recurrent nervure confluent with second transverse cubital nervure; third and fourth abdominal segments with broad uninterrupted white bands...10. **confluenta** n. sp. ♂ (Col.)

Second recurrent nervure received by the third submarginal cell; third and fourth abdominal segments with a yellow spot on each side.....11. **mœsta** n. sp. ♂ (Nev.)

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Coxæ more or less yellow; second segment of abdomen above always with pale band or spots.

Third submarginal cell narrowed at least one-half towards the marginal.

Form subrobust; transverse ridge between base of antennæ white.....12. **nevadica** n. sp. ♂ (Nev.)

Form long and slender; transverse ridge between base of antennæ black.....13. **angustata** n. sp. ♂ (Cala.)

Third submarginal cell not narrowed one-half towards the marginal.

First abdominal segment entirely black.

Second submarginal cell much longer than broad, apex of the third truncate; the pale bands on abdomen uninterrupted; prothorax with a yellow band on anterior margin, interrupted medially and somewhat recurved.

14. **truncata** n. sp. ♂ (Nev.)

Second submarginal cell subquadrate, being but slightly longer than broad, apex of third rounded; pale bands on abdomen interrupted or subinterrupted; prothorax with a white line on lateral anterior margin.....15. **obscura** n. sp. ♂ (Nev.)

First abdominal segment with two pale spots above; second submarginal cell quadrate or nearly so, apex of the third rounded; form long and narrow; the pale bands on abdomen uninterrupted.....16. **fulvicornis** n. sp. ♂ (Nev.)

Metathorax with two yellow spots.

Inner yellow orbital line not reaching summit of eyes; clypeus with transverse yellow spot at base.

17. **americana** n. sp. ♀ (N. Y.)

Inner yellow orbital line extending beyond summit of eyes to a point opposite the posterior ocelli; clypeus with lateral and basal margins yellow.

Venter with interrupted yellow bands, the second segment black, sometimes with a narrow interrupted band at tip; posterior yellow orbital line narrow, interrupted.

18. **centrata** Say, ♀ (N. Y., Del., Va.)

Venter with very broad yellow bands, the second segment almost entirely yellow; posterior yellow orbital line broad and entire.....19. **montana** n. sp. ♀ (Nev.)

Space between eyes and base of mandibles broad.

Scutellum, metathorax and pleura with lateral yellow spot; posterior coxæ and femora yellow beneath.

20. **elegans** n. sp. ♂ ♀ (Nev.)

Scutellum, metathorax, pleura and posterior coxæ entirely, and their femora except tips black...21. **coloradensis** n. sp. ♂ (Col.)

Mr. Cresson stated that detailed descriptions of the new species, briefly characterized above, would be published shortly.

The following additions to the Library of the American Entomological Society were announced:—

American Entomologist, vol. iii, Nos. 10 and 11. By purchase.

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Proceedings of the Boston Society of Natural History, vol. xx, pages 353—384. From the Society.

Psyche, vol. iii, Nos. 75 and 76. (July and August, 1880.) From the Editors.

Entomologist's Monthly Magazine, Nos. 197 and 198. From the Conductors.

Proceedings of the Zoological Society of London, 1880. Part 2. From the Society.

Canadian Entomologist, vol. xii, Nos. 9 and 10. From the Editor.

Annales de la Société Entomologique de France, Série 5, Tome viii, 1878, Tome ix, 1879. From the Society.

Bulletin de la Société d'etudes Scientifiques de Lyon, Tome v, 1879. From the Society.

Horæ Societatis Entomologicæ Rossicæ, vol. xiv. From the Society.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, vol. vi, No. 1. From the Society.

Verhandlungen des naturforschenden Vereines in Brünn. Band xvii, 1878. From the Society.

Deutsche Entomologische Zeitschrift. From the Entomological Society of Berlin.

Nova Acta Regiæ Societatis Scientiarum Upsaliensis, Ser. 3, vol. x, No. 2, 1879. From the Society.

Transactions, Proceedings and Report of the Philosophical Society of Adelaide, South Australia, 1878 and 1879. From the Society.

Journal of the Royal Microscopical Society, vol. iii, No. 5, October, 1880. From the Society.

Entomologisk Tidskrift, af. Jacob Spangberg, Band i, Haft 2, 1880. From the Author.

Cistula Entomologica, vol. ii, Part 23, September, 1880. From the Publisher.

Annual Report of the Curator of the Museum of Comparative Zoölogy at Havard College for 1879 and 1880. From the Museum.

Check List of the Coleoptera of America North of Mexico, with Supplement by E. P. Austin. By purchase.

Notes on the Coloration and Development of Insects, by P. Cameron. From the Author.

The Devonian Insects of New Brunswick, by Samuel H. Scudder. From the Author.

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DECEMBER 13, 1880.

Director Dr. LECONTE in the chair.

The Publication Committee reported favorably the following papers for publication in the Transactions of the American Entomological Society:—

"Notes on Elateridæ, Cebrionidæ, Rhipiceridæ and Dascyllidæ," by Geo. H. Horn, M. D.

"Revision of the species of Polyphylla of the United States," by Geo. H. Horn, M. D.

Dr. LeConte made the following observations on the synonymy and habits of various Coleoptera of the United States, gathered mostly from his observation and correspondence of the last month.

1. SYNONYMY.—*Cleronomus ornaticollis* Lec., is an extreme ♂ variety of the well known *Clerus thoracicus* Oliv. The antennæ of the ♂ are much more slender than those of the ♀, formed as in *Cleronomus*, which might probably be suppressed as a genus. The accumulation of larger series of specimens shows that the prothorax varies in color from almost entirely black to almost entirely yellow.

Clerus? tantillus Lec.—Mr. Schwarz has kindly sent me a specimen from Alabama, found preying upon the larvæ of an undescribed *Cis*, in a woody fungus. The pronotum has a moderately distinct marginal line, but the insect otherwise resembles in miniature *Thaneroclerus sanguineus*, so that I think it is not possible to refer it to the *Corynetes* group.

Myodites Schwarzi and *Zeschii* are respectively ♂ and ♀ of the same species; in the former the vertex is less elevated and the antennæ are black; in the latter the vertex is acute and the antennæ are brownish-yellow. This species has been raised by Mr. Hubbard from the cells of *Augochlora pura* Say. *M. Walshii* is very near this species but has the hind tibiæ less bent and less compressed. Should further observation show these characters to be valueless the last mentioned specific name will prevail.

Mr. Schwarz collected at Selma, Alabama, a species of *Myodites* parasitic on *Nomia nevadensis* Cresson. The abdomen is yellow in the ♀ and black in the ♂. [I have not yet seen this species but hope to have an opportunity of doing so before long.]

2. HABITS.—*Ernobius tenuicornis* Lec. In boughs of Pinus rigida, Mass., (Blanchard).

Ptilinus basalis Lec., in dead twigs and branches of Laurus, the

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Californian Bay or Laurel tree. Found only in decaying wood which has been dead at least two years but still remains united to the tree. *Chelifer scabriusculus* is found in the same burrows, (Berkeley, Cala., J. J. Rivers).

Amphicerus punctipennis Lec., bores in Orange trees in California, (Rivers), as *A. bicaudatus* (Say), does into grape vines in Illinois, as already observed by Dr. Shimer.

Stenaspis rimosa Dup.—On elm trees in Texas; (Dr. Brous).

Cyllene crinicornis Chevr.—On Platanus in Texas; (Dr. Brous).

Xylotrechus convergens Lec.—Several specimens reared from a branch of an undetermined *Cratægus*, locally known as Red Haw, by Mr. Myers, Fort Madison, Iowa. The specimens emerged from June 15th to July 1st.

Leptura abdominalis Hald.—In red cedar, New Jersey.

Acanthoderes Morrisii Uhler.—Lives in Liriodendron tulipifera.

Micracis hirtella Lec.—In Laurus, California, with *Ptilinus basalis;* (Rivers).

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Academy of Natural Sciences of Philadelphia, Part 2, April to September, 1880. From the Academy.

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Canadian Entomologist, vol. xii, No. 11. From the Editor.

Le Naturaliste Canadien, vol. xii, No. 138. From the Editor.

The Cotton Worm in the United States, by C. V. Riley. From the Author.

Philosophy of the Preparation of Butterflies and particularly of the Nymphalidæ, by C. V. Riley. From the Author.

A review of the species of Anisodactylus, and critical notes on the species of Selenophorus inhabiting the United States, by Geo. H. Horn, M. D. From the Author.

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TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME VIII.

Descriptions of new North American HYMENOPTERA in the collection of the American Entomological Society.

BY E. T. CRESSON.

Family TENTHREDINIDÆ.

CIMBEX Oliv.

Cimbex rubida.—♂ ♀.—Ferruginous; tips of mandibles, spot on middle lobe of mesothorax, pleura beneath, and most of venter, black; apex of antennæ orange-yellow; wings dark fuscous, violaceous, costal nerve ferruginous; legs entirely ferruginous; apical margin of basal segments of abdomen sometimes narrowly fuscous. Length .70—.80 inch.

Hab.—Nevada, (Morrison); California, (H. Edwards).

Cimbex semidea.—♀.—Black; head and thorax clothed with a short fine mixed black and pale pubescence; antennæ orange-yellow; upper margin of prothorax dilated laterally, dull luteous; wings yellow-hyaline, a longitudinal slightly oblique black cloud beneath stigma nearly covering the second discoidal cell, apical margin of the wings fuliginous; legs black, tinged with blue, tibiæ and tarsi pale yellow; abdomen black, middle of segments 2—5 more or less, and remaining segments entirely, yellowish-ferruginous, sometimes quite dull; spot at extreme sides of segment one, broad band at sides of 2—4, and spot at sides of five, white; venter blackish, ferruginous at tip. Length .60—.65 inch.

Hab.—White Mountains, N. H., (Dimmock). The legs are black, with tibiæ and tarsi yellowish.

TRICHIOSOMA Leach.

Trichiosoma triangulum Kirby.—var. **aleutiana.**—♀.—Pubescence of the head and thorax entirely black. Length .65 inch.

Hab.—Aleutian Islands, (H. Edwards).

ZAREA Leach.

Zarea americana.—♀.—Black, the head and thorax more or less tinged with dark submetallic green, clothed with a rather long erect black pubescence, slightly mixed with pale on vertex and mesothorax, the pubescence on the latter short and sparse; palpi, knees, tibiæ and more or less of tarsi pale

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yellowish-white; antennæ six-jointed, the last two forming a club, the terminal joint sometimes tinged with ferruginous; mesothorax feebly punctured; wings yellowish-hyaline, varied with yellowish-fuscous; tips of tarsi sometimes ferruginous; abdomen bronze-green, clothed with a very short pale sericeous pile, basal margin of the segments when bent down or distended bluish-black and glabrous; basal plates with prominent median carina; ventral segments sometimes narrowly margined at tip with whitish. Length .35—.50 inch.

Hab.—California, (Henry Edwards).

SERICOCERA Brullé.

Sericocera Edwardsii.—♀.—Large, robust, honey-yellow, mesothorax and scutellum darker; head, antennæ, tips of femora, and tibiæ and tarsi entirely, black; mandibles palish at base; wings pale fuliginous, a narrow band beneath stigma and base blackish, the intermediate cells hyaline, stigma and veins black; body short and broad, triangular impression on mesothorax deep, the middle lobe with a medial impressed line; head narrower than thorax, transversely subcompressed. Length .30 inch.

♂.—Colored like the ♀, head broader and abdomen smaller; antennæ two-thirds the length of body, third joint bifurcate, curved, slender, tapering at tip, densely ciliate; wings dark fuliginous, base one-half to one-third hyaline. Length .30 inch.

Hab.—Mazatlan, Mexico, (Henry Edwards). This is the largest and finest species yet discovered in North America, and is distinguished from those already known (all from Mexico), by the thorax and abdomen being entirely yellow.

SCHIZOCERA Latr.

Schizocera Krugii.—♂.—Short, robust, black; head short, very transverse, eyes prominent; antennæ slender, flagellum bifurcate, ciliated beneath with blackish pubescence; prothorax, pleura, anterior margin of lobes of mesothorax, coxæ and venter reddish-yellow; wings subhyaline, nervures and stigma black, three submarginal cells, the second quadrangular, longer than broad, receiving the second recurrent nervure near the base, under wing with two middle cells; four anterior legs more or less pale in front. Length .23 inch.

Hab.—Porto Rico, (F. Krug).

Schizocera brunniventris.—♀.—Shining black, sides of prothorax, tegulæ and abdomen yellowish-brown, the latter paler towards apex; head short, very transverse, eyes prominent; antennæ about as long as width of head, flagellum flattened, subfusiform; wings fusco-hyaline, nervures and stigma black, third submarginal cell narrowed below, the outer nervure rounded; knees, tibiæ except tips of posterior pair, and base of tarsi more or less, dull whitish. Length .22 inch.

♂.—The bifurcate flagellum robust, flattened, ciliated with short pubescence; abdomen fuscous above, blackish at base, venter yellowish-brown. Length .20 inch.

Hab.—Nevada, (Morrison). The head of this and the preceding species is very transverse, with prominent eyes.

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Schizocera maura.—♂.—Entirely shining black, head and thorax clothed with a short pale sericeous pile; the bifurcate flagellum ciliated beneath with long black pubescence; thorax above subæneous; scutellum somewhat gibbous posteriorly, rounded at tip; four anterior tibiæ and tarsi dull testaceous; wings hyaline, iridescent, slightly dusky towards tips, nervures and stigma black, the latter pale at base, third submarginal cell quadrangular, narrowed nearly one-half at base, the outer nervure straight; abdomen polished, flattened, especially at apex. Length .25 inch.

Hab.—Nevada, (Morrison).

Schizocera? invita.—♀.—Shining black; mandibles broad at base, acute at tip, with a wide shallow groove above, pale piceous; antennæ short, about as long as width of head, slender, gradually narrowed to tip which is acute; scutellum flat, rounded at tip; tegulæ pale piceous; wings fusco-hyaline, nervures and stigma black, with one marginal, not appendiculate, and three submarginal cells, the first more than twice the length of the second, receiving the first recurrent nervure a little beyond the middle, the second submarginal quadrangular, narrowed beneath, receiving the second recurrent near the base, under wing with two middle cells, the upper one sometimes incomplete, the lower one small; knees, tibiæ and base of tarsi more or less, dull whitish; abdomen subcompressed. Length .20 inch.

Hab.—Nevada, (Morrison).

PTILIA St. Farg.

Ptilia mexicana.—♂.—Black, shining; face and clypeus dull testaceous; antennæ long, slender, fuscous, flagellum bifurcate, densely ciliated with black pubescence; wings fusco-hyaline, darker on costa beyond stigma, nervures black; anterior legs obscurely pale in front; abdomen entirely yellow. Length .25 inch.

Hab.—Mexico, (Sumichrast).

HYLOTOMA Latr.

Hylotoma mellina.—♀.—Yellowish-ferruginous, shining; head fuscous, sometimes black, except middle of face, clypeus and mouth parts; wings yellowish-hyaline, stigma black with a fuscous cloud beneath. Length .40 inch.

Hab.—Nevada, (Morrison).

PRISTIPHORA Latr.

Pristiphora jocularis.—♀.—Black, subsericeous; labrum white; mandibles except tips ferruginous; upper corners of prothorax and tegulæ yellowish; wings hyaline, iridescent, nervures and stigma black; legs yellowish, posterior femora pale ferruginous, tips of the latter, and of four posterior tibiæ, and the posterior tarsi entirely, black; abdomen yellow-ferruginous, basal plates and two apical segments black. Length .25 inch.

♂.—Smaller; most of clypeus and labrum whitish; antennæ more robust than in ♀; abdomen above black, the second and third segments yellow-ferruginous. Length .20 inch.

Hab.—Nevada, (Morrison).

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EUURA Newm.

Euura albiricta.—♀.—Shining black; head broad, posterior orbits dull testaceous; spot beneath eyes, clypeus, labrum, and mandibles except tips, pale testaceous; wings hyaline, iridescent, base of stigma pale; tegulæ and legs pale testaceous, middle of femora more or less, tips of posterior tibiæ and tarsi except base, blackish. Length .15 inch.

Hab.—Nevada, (Morrison).

NEMATUS Jurine.

Nematus rapax.—♂.—Black, shining; clypeus emarginate; antennæ robust, flattened, slender at tips, third, fourth and fifth joints of nearly equal length; wings subhyaline, nervures black, stigma fuscous, a small blackish callous spot or line in the externo-median and second submarginal cells, the latter receiving the first recurrent nervure about one-third from the base and the second near the apex, the third submarginal nearly as long as the second, broader at tip; knees, tibiæ and base of four anterior tarsi soiled white; four posterior tibiæ with a groove on outer side; abdomen elongate, narrowed to apex, ridged down the back. Length .30 inch.

Hab.—Nevada, (Morrison). Allied to *concolor* Norton.

Nematus vicinalis.—♀.—Robust, black; clypeus short, obtusely emarginate; labrum pale; antennæ longer than head and thorax, slender, third, fourth and fifth joints of nearly equal length; tegulæ piceous, pale in front; wings hyaline, nervures and stigma black, second submarginal cell receiving the first recurrent nervure less than one-third from the base and the second about one-sixth from apex, third submarginal rather more than half the length of the second, broader at tip; legs rather robust, coxæ, trochanters, knees, tibiæ and base of four anterior tarsi more or less, soiled white, tips of posterior tibiæ and apical half within black; abdomen oblong, robust, subcylindrical, rather longer than head and thorax. Length .33 inch.

Hab.—California, (Crotch). Allied to *malacus* Norton.

Nematus nigrofemoratus.—♀.—Short, robust, black, sericeous; anterior margin of clypeus, labrum, spot beneath eyes, a dot at summit and obscure line on upper posterior orbits, whitish; clypeus feebly emarginate; antennæ short, slender, three basal joints of flagellum of nearly equal length; narrow margin of posterior angles of prothorax and most of tegulæ, whitish; wings hyaline, faintly dusky at tips, nervures and stigma black, the costal nervure pale at base, nervures much as in *vicinalis*, the externo-median and second submarginal cells each with a black dot; legs robust, tips of coxæ, trochanters, knees, tibiæ and base of tarsi more or less, whitish; posterior tibiæ blackish at tips within; abdomen short, ovate, about as long as head and thorax. Length .26 inch.

Hab.—Nevada, (Morrison).

Nematus latus.—♀.—Short, broad, subrobust, shining black, subsericeous; labrum dull whitish; antennæ rather short, slender, three basal joints of flagellum of nearly equal length; posterior angles of prothorax tipped with dull whitish; wings hyaline, nervures black, costal nerve and stigma fuscous; neuration much as in *vicinalis*, except that the third submarginal cell is rather shorter, second submarginal with a black dot near the middle; legs subrobust,

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knees, anterior femora within, four anterior tibiæ, base of their tarsi more or less, and base of posterior tibiæ pale; abdomen short, broad-ovate, depressed. Length .23 inch.

Hab.—Nevada, (Morrison).

Nematus iridescens.—♂.—Narrow, shining, black; clypeus, labrum and palpi, whitish; antennæ subrobust, slender at tips, three basal joints of flagellum of nearly equal length; a shallow basin on vertex, converging above and enclosing the lower ocellus; posterior angles of prothorax and tegulæ whitish; wings hyaline, iridescent, nervures and stigma black, neuration much as in *vicinalis;* legs dull whitish, coxæ at base, and four anterior femora except base and apex fuscous; posterior femora except tips of their tibiæ, their tarsi entirely, and tips of four anterior tarsi, black; posterior tibiæ deeply grooved on outer side towards apex; abdomen elongate, narrow, depressed, ridged down the back. Length .23 inch.

Hab.—Nevada, (Morrison). This may be the ♂ of *lutus.*

Nematus parvus.—♀.—Small, piceous; spot between antennæ, clypeus, labrum, mandibles except tips, spot beneath eyes, and palpi, white; upper posterior orbits sometimes obscurely pale; antennæ more than half the length of body, slender, three basal joints of flagellum of nearly equal length; posterior angles of prothorax and tegulæ, whitish; wings hyaline, slightly yellowish, iridescent, nervures and stigma pale brownish, base of stigma and nervures at base of wing, whitish, second submarginal cell receiving first recurrent nervure about one-fourth from base, and the second about one-eighth from tips, third submarginal cell about half the length of second, longer than broad; tips of coxæ, trochanters, sides of femora, knees, most of tibiæ and base of four anterior tarsi, dull whitish; spot on outer middle of tibiæ and tips of posterior pair black; abdomen short, robust, more or less compressed at tip. Length .15 inch.

Hab.—Nevada, (Morrison).

Nematus palliventris.—♀.—Black; clypeus obtusely emarginate; labrum and palpi pale; antennæ two-thirds the length of the body slender, three basal joints of the flagellum of nearly equal length; posterior angles of prothorax and tegulæ, white; wings hyaline, iridescent, nervures and stigma black or fuscous, neuration as in *vicinalis;* tips of coxæ, trochanters, four anterior femora in front, knees, four anterior tibiæ, most of their tarsi, posterior tibiæ at base and line within, all yellowish-white; abdomen subcompressed, a little longer than head and thorax, lateral margin of the segments, apical middle of first, apical segment and the venter entirely, white. Length .25 inch.

Hab.—Nevada, (Morrison).

Nematus ruralis.—♀.—Black, shining; face, spot between antennæ, cheeks, line across the head behind the ocelli, sometimes more or less interrupted medially, clypeus, labrum, mandibles except tips, palpi, most of prothorax, tegulæ, sometimes two spots at base of scutellum, most of legs, venter, extreme sides and apex of abdomen above, luteous or dull yellowish; antennæ more than half the length of the body, slender, three basal joints of the flagellum of nearly equal length; wings hyaline, nervures black, costal nerve and stigma luteous or pale fuscous; second submarginal cell receiving the first

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recurrent nervure less than one-third from base, the second coinciding with second transverso-median nervure, third submarginal cell three-fourths the length of the second, widened to apex; base of coxæ and of femora more or less black, tips of posterior tibiæ and the tarsi dusky. Length .25—.30 inch.

Hab.—Nevada, (Morrison). Allied to *subalbatus* Norton.

Nematus luteipes.—♀.—Subrobust, black, shining, subsericeous; most of clypeus, labrum, base of mandibles, posterior orbits and spot beneath eyes, dull whitish; clypeus deeply emarginate; antennæ slender, more than half the length of the body, three basal joints of flagellum of nearly equal length; posterior angles of prothorax and tegulæ pale; wings faintly dusky, iridescent, nervures and stigma black, the latter streaked with pale fuscous, neuration as in *vicinalis* except that the third submarginal cell is much shorter, being nearly square, externo-median and second submarginal cells each with a black dot; legs luteous, base of coxæ, line at base of four anterior femora above, line on posterior femora above, black; posterior tibiæ behind and their tarsi dusky; abdomen robust, subcompressed, longer than head and thorax; venter varied with dull testaceous. Length .25 inch.

Hab.—Nevada, (Morrison).

Nematus Dimmockii.—♀.—Shining black; cheeks pale piceous; face, clypeus and labrum, pale; antennæ about half the length of the body, slender, three basal joints of flagellum of nearly equal length; the third rather shorter than the fourth; thorax with pale sericeous pubescence; posterior angles of mesothorax and tegulæ luteous; wings hyaline, nervures and stigma blackish, second submarginal cell receiving the first recurrent nervure before the middle, the second coinciding with the second transverso-median nervure, third submarginal cell nearly one-third shorter than the second; one wing has the middle third of the second transverso-median nervure obliterated, while on the other it is entirely wanting; legs fulvo-luteous, base of the coxæ, extreme tips of posterior tibiæ and most of the tarsi black or fuscous; abdomen robust, piceous, sides of dorsal segments stained with rufo-testaceous. Length .35 inch.

Hab.—Near Summit of Mt. Washington, N. H., (Geo. Dimmock).

Nematus nigropectus.—♀.—Black, shining; the face beneath the antennæ, broad posterior orbits, dilated above at summit of eyes, clypeus, labrum, mandibles except tips, palpi, prothorax, tegulæ and large subtriangular mark on sides of pleura, all white; antennæ more than half the length of the body, slender, the three basal joints of the flagellum of nearly equal length, the first being rather the shortest; wings hyaline, iridescent, slightly dusky towards apex, nervures black, stigma fuscous, neuration as in *vicinalis;* legs white, base of posterior coxæ, extreme tips of their tibiæ and their tarsi entirely, black; abdomen subcompressed, yellowish-white, basal plates, and band at base of dorsal segments, black. Length .32 inch.

Hab.—Nevada, (Morrison). Allied to *ventralis.*

Nematus pallifrons.—♂.—Small, subrobust, black, shining, head broad; face, broad anterior and posterior orbits, interrupted near summit within, clypeus, labrum, mandibles except tips, palpi, prothorax, tegulæ and pleura entirely, except upper margin immediately beneath wings, all yellowish-

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white or luteous; antennæ thickened, slender at tips, three basal joints of flagellum of nearly equal length; wings hyaline, nervures blackish, stigma and costal nerve luteous, neuration much as in *vicinalis;* legs yellowish-white or luteous, tips of posterior tibiæ and their tarsi black; abdomen a little longer than head and thorax, piceous above, at tip and beneath luteous, the dorsal segments obscurely edged with luteous. Length .20 inch.

Hab.—Texas, (Belfrage).

Nematus militaris.—♀.—Shining black; antennæ more than half the length of the body, slender, especially at tips, three basal joints of flagellum of nearly equal length; palpi pale; sides of prothorax, mesothorax except most of middle lobe, pleura except narrow space beneath wings, tegulæ, legs except tips of posterior tibiæ and the tarsi more or less, pale ferruginous; wings hyaline, nervures and stigma black, second submarginal cell receiving the first recurrent nervure about one-fifth from the base and the second same distance from the tip, third submarginal not much larger than the first, nearly square; abdomen elongate, shining, venter rufotestaceous, varied with fuscous. Length .26 inch.

Hab.—White Mountains, N. H., (Morrison).

Nematus notabilis.—♀.—Large, robust, black; head and thorax with a fine pale sericeous pile; labrum, palpi and tip of posterior angles pale; antennæ more than half the length of the body, slender, three basal joints of the flagellum of nearly equal length; wings hyaline, nervures and stigma black, second submarginal cell receiving the first recurrent nervure about one-fourth from the base and the second about one-fifth from the tip, the third submarginal a little more than half the length of the second; legs yellowish, femora pale ferruginous, coxæ, tips of posterior femora, apical third of their tibiæ and their tarsi, black; abdomen broad, depressed, ridged down the back, the first four segments yellowish-ferruginous. Length .40 inch.

Hab.—Massachusetts, (Henshaw). Allied to *rufofasciatus* Norton.

Nematus latifasciatus.—♀.—Black, shining; anterior margin of clypeus, labrum, base of mandibles, and palpi, whitish; antennæ three-fourths the length of the body, slender, three basal joints of the flagellum long, of nearly equal length; posterior angles of prothorax, and tegulæ, yellowish; wings hyaline, nervures and stigma black, second submarginal cell receiving the first recurrent nervure one-third from the base and the second one-sixth from the tip, third submarginal about half the length of the second, longer than broad and of nearly equal width; legs yellowish-white, femora tinged with fulvous, base of posterior coxæ above, tips of their femora, apical half of their tibiæ, their tarsi entirely, and tips of four anterior tarsi, black; abdomen oblong-ovate, subdepressed, ridged down the back, four basal segments yellowish-fulvous. Length .30 inch.

Hab.—White Mountains, N. H., (Morrison). Closely resembles *notabilis*, but smaller, with longer and more slender antennæ, pale coxæ, etc.

Nematus Edwardsii.—♀.—Piceous; spot on middle of face, clypeus, labrum, mandibles except tips, palpi, legs and abdomen yellowish-testaceous; antennæ slender, black, nearly as long as the body, the three basal joints of

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flagellum long and equal in length; most of prothorax, sides of anterior lobe of mesothorax, and inner margin of lateral lobes, lateral scutellar region, sides of pleura more or less, and tegulæ, reddish-brown; wings broad, hyaline, iridescent, nervures and stigma brown, third submarginal cell small, nearly rectangular, tips of posterior tibiæ and their tarsi, black; abdomen short, subovate. Length .20 inch.

Hab.—California, (Henry Edwards).

Nematus limbatus.—♀.—Black; orbits obscurely rufo-piceous; middle of face, anterior margin of clypeus, labrum, base of mandibles and palpi, more or less pale; antennæ slender, more than half the length of the body, the two basal joints of the flagellum of equal length, the third shorter; most of prothorax, tegulæ, legs and abdomen, except a broad median stripe above, honey-yellow; wings hyaline, iridescent; nervures and stigma fuscous, costal margin of the latter black, second submarginal cell broad, receiving the first recurrent nervure one-third from the base, the second coinciding with the second transverso-median nervure, third submarginal more than half the length of the second, of nearly equal width; in one specimen the second transverso-median nervure is wanting in both anterior wings; tips of posterior tibiæ and their tarsi black; abdomen broad-ovate, depressed, ridged down the back. Length .25 inch.

Hab.—Illinois, (Walsh).

Nematus corylus.—♀.—Black, shining; most of clypeus, labrum, mandibles except tips, palpi and scape, more or less pale; antennæ nearly as long as the body, slender, three basal joints of flagellum of nearly equal length; posterior angles of prothorax and tegulæ yellowish; wings hyaline, nervures and stigma black or fuscous, costal nerve dull luteous; second submarginal cell receiving the first recurrent nervure less than one-third from the base and the second near the tip; legs yellowish-white, tips of posterior femora, apical half of their tibiæ and their tarsi entirely, black; abdomen broad-ovate, depressed, pale fulvous, the three or four basal segments above more or less black or fuscous medially, this color sometimes reaching nearly to the lateral margin; venter entirely yellowish-fulvous. Length .25 inch.

Hab.—Pennsylvania. Bred from small larvæ found on the Hazel.

Nematus discolor.—♀.—Robust, dull honey-yellow or fulvo-luteous, subopaque; most of vertex, occiput, spot or stain on each side of face, tips of mandibles, palpi, antennæ, mesothorax except narrow margin of the lobes, apex of scutellum, postscutellum, metathorax, upper margin of pleura, pectus, base of coxæ, line on femora above and beneath, the tibiæ above more or less, tips of tarsi, the posterior pair entirely, posterior margin of basal plates, and sometimes spots at tip of apical segments of abdomen, all black or fuscous; antennæ not longer than head and thorax, slender, third joint shorter than the third and fourth which are of nearly equal length; wings faintly tinged with dusky, nervures and stigma black or fuscous, second submarginal receiving the first recurrent nervure about one-third from the base and the second about one-sixth from the tip, the third submarginal about two-thirds the length of the second, much widened at tip. Length .35 inch.

Hab.—Colorado, (Morrison).

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Nematus agilis.—♂.—Small, slender; head white, occiput confluent with a large ovate spot on vertex covering the ocelli, and tips of mandibles black; eyes prominent, nearly round; antennæ as long as body, slender, black above, dull luteous beneath, three basal joints of the flagellum of nearly equal length; thorax black above, yellowish beneath, sometimes a black line beneath wings; posterior angles of prothorax and tegulæ white; wings hyaline, iridescent, nervures fuscous, stigma dull luteous, second submarginal cell receiving the first recurrent nervure about one-fourth from the base and the second about one-eighth from the tip, third submarginal less than half the length of second, quadrate; legs slender, yellowish, posterior tibiæ above and at tip and all the tarsi, more or less fuscous; abdomen narrow, elongate, black above, the lateral margin varied with yellowish; venter entirely yellowish. Length .18 inch.

Hab.—Nevada, (Morrison).

Nematus nevadensis.—♀.—Small, robust, honey-yellow; large spot on vertex, extending back to occiput and sometimes to base of antennæ, sometimes much reduced and disconnected from occiput, tips of mandibles, antennæ, mesothorax, sometimes the scutellums and narrow space beneath wings, basal plates, and more or less of the basal middle of the first three or four segments of abdomen above, black; face and mouth parts whitish; antennæ shorter than usual, slender, three basal joints of flagellum of nearly equal length; sometimes the sides of the middle lobe of mesothorax are honey-yellow; wings hyaline, faintly tinged with yellowish, iridescent, nervures fuscous, most of stigma and nervures at base of wing pale luteous; second submarginal cell receiving the first recurrent nervure about one-fourth from base and the second rather less than one-fourth from tip, third submarginal about half the length of second, longer than broad and wider at tip; tips of posterior tibiæ and of the tarsi more or less dusky; abdomen short, broad-ovate. Length .17 inch.

♂.—More slender, antennæ longer, sometimes the abdomen above except lateral margin and apex, is black; legs entirely honey-yellow. Length .15—.17 inch.

Hab.—Nevada, (Morrison). Allied to *agilis*.

Nematus pectoralis.—♀.—Dull honey-yellow or fulvo-luteous, shining; an ill-defined spot on vertex covering the ocelli, occiput, tips of mandibles, antennæ, middle lobe of mesothorax except sides, lateral lobes more or less, two large rounded spots sometimes confluent, on pectus, scutellum except base, postscutellum, basal plates, base of all the coxæ, four anterior femora at base beneath, and the abdomen above except extreme sides and tip, black; sometimes the middle lobe of mesothorax and the scutellum are entirely dull honey-yellow or fulvo-luteous; antennæ slender, more than half the length of the body, three basal joints of the flagellum of nearly equal length; tegulæ whitish; wings hyaline, nervures fuscous, costal nerve and stigma pale luteous; second submarginal cell receiving the first recurrent nervure about one-third from the base, and the second near the tip, third submarginal cell more than half the length of second, widened to tip; tarsi more or less dusky. Length .27 inch.

Hab.—Colorado, Nevada, (Morrison).

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Nematus dorsivittatus.—♀.—Pale greenish-white; head tinged with yellow, face white; large spot on vertex, covering the ocelli, extreme tips of mandibles, antennæ, mesothorax except sides of middle lobe, most of scutellum, metathorax, and stripe down the middle of the abdomen above, broad at base and gradually narrowed to apex, black; antennæ three-fourths the length of the body, slender, three basal joints of flagellum very long and of equal length; wings hyaline, iridescent, nervures black, costal nerve and stigma pale luteous, second submarginal cell receiving the first recurrent nervure about one-fourth from the base, and the second about one-eighth from the tip, third submarginal half the length of the second, nearly square; tips of posterior tibiæ dusky, the tarsi more or less blackish. Length .25 inch.

Hab.—Nevada, (Morrison).

Nematus suadus.—♀.—Honey-yellow, shining; spot within ocelli, tips of mandibles, antennæ, broad stripe on middle lobe of mesothorax, narrower one on each lateral lobe, spot before each middle coxa, postscutellum, line behind, and disk of abdomen above except narrow apical margin of the segments, black; antennæ two-thirds the length of the body, three basal joints of flagellum of nearly equal length; wings hyaline, faintly yellowish towards base, nervures fuscous, costal nerve and stigma luteous, second submarginal cell receiving the first recurrent nervure about one-third from the base, the second coinciding with the second transverso-median nervure, third submarginal cell more than half the length of second; extreme tips of posterior tibiæ and the tarsi more or less, fuscous; abdomen broad-ovate, subdepressed. Length .25 inch.

Hab.—White Mountains, N. H., (Morrison).

Nematus mellinus.—♀.—Honey-yellow; a spot between ocelli, sometimes wanting, spot behind ocelli, tips of mandibles, antennæ, spot or line on lateral lobes of mesothorax, extreme tip of scutellum, and the metathorax above, black; antennæ about half the length of the body, slender, the three basal joints of flagellum of nearly equal length; wings hyaline, iridescent, faintly tinged with yellowish, nervures black, costal nerves and stigma honey-yellow, second submarginal cell receiving the first recurrent nervure about one-fourth from the base and the second about one-sixth from the tip, third submarginal more than half the length of second, longer than broad and widened to tip; tarsi more or less dusky; abdomen robust, about as long as head and thorax. Length .23 inch.

Hab.—Nevada, (Morrison).

AULACOMERUS Spin.

Aulacomerus? ebenus.—♀.—Black, shining; labrum, base of mandibles, palpi, posterior angles of prothorax, tegulæ, and legs except base of coxæ, of femora and the tarsi more or less, dull yellowish-white; clypeus slightly notched at tip; antennæ about half the length of the body, slender towards tip, nine-jointed, three basal joints of flagellum of nearly equal length; wings hyaline, nervures fuscous, costal nerve and stigma pale honey-yellow; one marginal, and four submarginal cells, the first submarginal small, quadrate, the second about three times longer than the first, receiving the first recurrent nervure less than one-third from base, third submarginal about half the length

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of second, longer than broad, widened at tip and receiving the second recurrent nervure near the base; lanceolate cell petiolated as in *Nematus;* under wing with two middle cells; abdomen broad-ovate, depressed, extreme apex above and apex of venter more or less pale. Length .30 inch.

Hab.—Colorado, (Morrison).

EMPHYTUS Leach.

Emphytus improbus.—♀.—Black, shining; clypeus, labrum, upper posterior margin of prothorax, outer margin of tegulæ, tips of anterior femora, their tibiæ within, and base of four posterior tibiæ, white; antennæ brown at apex, about half the length of the body, third, fourth and fifth joints of nearly equal length; wings smoky-hyaline, nervures and stigma black, lanceolate cell with oblique cross-line, under wings with one middle cell; first tarsal joint not as long as all the remainder; abdomen about as long as head and thorax, subcompressed at tip, sides of dorsal segments with a more or less obscure pale spot, sometimes quite indistinct. Length .25 inch.

♂.—More slender than ♀ and with longer, stouter antennæ; abdomen narrow, depressed; otherwise as in ♀. Length .22 inch.

Hab.—Nevada, (Morrison). Closely allied to *maculatus* Norton.

DOLERUS Leach.

Dolerus coloradensis.—♀.—Fulvo-ferruginous; head, antennæ, scutellum, spot behind, metathorax laterally, posterior margin of pleura laterally, the under surface of pleura more or less, and the legs, black; head rugulose, clypeus deeply emarginate at tip, sometimes more or less ferruginous; thorax above sparsely punctured, pleura rugulose at sides, smooth and shining beneath; wings pale fusco-hyaline; abdomen shining. Length .45 inch.

Hab.—Colorado, (Morrison). Closely allied to *tejonensis* Norton.

DINEURA Dahlb.

Dineura luteipes.—♂.—Shining black; antennæ three-fourths the length of the body, third joint shorter than the fourth, fourth and fifth subequal; wings hyaline, iridescent, nervures brown, costal nerve and stigma dull luteous, marginal cross nervure received beyond middle of third submarginal cell which is longer than broad, second submarginal cell receiving the first recurrent nervure near the base and the second near the tip; legs dull luteous, coxæ, trochanters and base of femora black, tips of tarsi dusky; apex of venter rufo-testaceous. Length .20 inch.

Hab.—Maine, (C. H. Fernald).

MESONEURA Hartig.

Mesoneura albipes.—♀.—Black, shining; clypeus deeply emarginate, labrum piceous, palpi pale, antennæ slender, rather longer than head and thorax, joints 3—5 subequal; upper corners of prothorax, tegulæ and legs luteous; wings hyaline, iridescent, nervures brown, stigma luteous, marginal cross nervure straight, received in middle of third submarginal cell which is about twice longer than wide; tarsi more or less dusky; abdomen broad ovate, depressed, extreme sides and apex, and venter mostly, yellow-luteous. Length .25 inch.

Hab.—Nevada, (Morrison).

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SELANDRIA Leach.

Subgenus *Blennocampa* Hartig.

Selandria carbonaria.—♀.—Deep black, shining; antennæ thickened in middle, third joint a little longer than the fourth; tegulæ brown, wings fuliginous, paler at tips, lanceolate cell petiolate, under wing without middle cell; trochanters, anterior legs in front, knees and tarsi more or less, pale luteous; abdomen broad, depressed, entirely shining black. Length .25 inch.

Hab.—Georgia, (Morrison).

Selandria parva.—♂.—Small, black, shining; antennæ slightly thickened medially, third and fourth joints equal in length; wings smoky, apex hyaline, lanceolate cell petiolated, under wing without middle cell; four anterior legs, except coxæ, and posterior trochanters, knees and tarsi, dull whitish; abdomen short, depressed. Length .20 inch.

Hab.—Colorado, (Morrison).

Selandria floridana.—♂.—Small, shining, black; mandibles rufopiceous; antennæ as long as head and thorax, flagellum robust at base, first joint longer than second; upper lateral margin of prothorax and tegulæ, white; wings smoky, nervures and stigma black, lanceolate cell petiolate, under wing without middle cell; legs luteous varied with fuscous especially the posterior pair, coxæ black; abdomen short, about as long as head and thorax. Length .20 inch.

Hab.—Haulover, Florida, (C. V. Riley).

Selandria bipartita.—♂.—Black; antennæ shortened, thickened at base, third joint longer than fourth; labrum, palpi, upper corners of prothorax, lateral margin of middle lobe of mesothorax obscurely, two dots behind scutellum, oblique line on posterior margin of pleura, and tegulæ, pale luteous; wings hyaline, nervures brown, stigma and costa pale luteous, lanceolate cell petiolate, under wing without middle cell; legs rather stout, pale luteous, most of coxæ and trochanters, base of four anterior femora above and line on posterior pair above, blackish; abdomen above pale luteous or ochraceous, basal plates black; venter blackish, the segments pale at tip. Length .30 inch.

Hab.—Texas, (Belfrage).

Subgenus *Monophadnus* Hartig.

Selandria diluta.—♀.—Ochraceous, head, mesothorax, scutellum and pleura pale castaneous; clypeus, labrum and scape ochraceous; flagellum black, rather short, slender, filiform, first joint longer than second; upper corners of prothorax and tegulæ whitish; wings tinged with yellow, stigma, costa and nervures pale luteous, lanceolate cell petiolate, under wing with one middle cell; abdomen as long as head and thorax. Length .27 inch.

Hab.—Canada, (Saunders); Missouri (Riley).

Selandria nigella.—♀.—Robust, deep black, shining; mandibles unusually stout; antennæ rather short, filiform, third and fourth joints about equal in length, wings pale fuliginous, iridescent, nervures and stigma black, marginal cross nervure coinciding with apical nervure of third submarginal cell, lanceolate cell petiolate, under wing with one middle cell; knees, tibiæ except line beneath and base of tarsi more or less, white; abdomen robust, subcompressed. Length .26 inch.

Hab.—Nevada, (Morrison).

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Selandria irrogata.—♀.—Shining black; antennæ short, subfiliform, subrobust, third joint longer than fourth; upper margin of prothorax laterally, tegulæ more or less, knees, anterior tibiæ above, and base more or less of two posterior pairs, white; wings faintly smoky, iridescent, nervures and stigma black, lanceolate cell petiolate, under wing with one middle cell. Length .25 inch.

Hab.—Colorado, (Morrison).

Selandria nevadensis.—♀.—Robust, shining black; labrum dull white; antennæ rather long, slender, third and fourth joints equal in length; pro- and mesothorax, scutellum except middle and tips, tegulæ and upper margin of pleura, fulvo-ferruginous; wings pale fuliginous, nervures and stigma black, lanceolate cell petiolate, under wing with one middle cell; tips of femora, tibiæ except tips and base of tarsi more or less, white. Length .30 inch.

♂.—Like the ♀, except that the middle lobe of mesothorax is sometimes more or less black and the pleura is entirely so. Length .25 inch.

Hab.—Nevada, (Morrison). This and the next species are allied to *rudis* Norton.

Selandria montivaga.—♀.—Shining black; labrum dull whitish; antennæ about as long as head and thorax, slender, third and fourth joints equal in length; pro- and mesothorax, scutellum except tip, tegulæ, and pleura except two more or less confluent spots beneath, fulvo-ferruginous; wings pale fuliginous, nervures and stigma black, lanceolate cell petiolate, under wing with one middle cell; knees and anterior tibiæ obscurely pale. Length .25 inch.

Hab.—Nevada, (Morrison). Closely allied to *nevadensis*, but distinguished by the shorter antennæ and blackish legs.

Selandria Rileyi.—♀.—Short, robust, head and thorax black; orbits, confluent with an interrupted line across vertex behind ocelli, insertion of antennæ, spot between them, tip of first joint, clypeus, spot on mandibles, palpi, most of prothorax, lateral margins of anterior lobe of mesothorax, a cordate spot on scutellum, a line on each side, tegulæ, posterior margin of pleura, legs, and most of abdomen, pale luteous; antennæ rather slender, not as long as head and thorax, third joint much longer than fourth; wings hyaline, iridescent, nervures and stigma luteous, lanceolate cell petiolate, under wing with one middle cell; femora more or less dusky at base beneath; abdomen short, broad, basal plates except apical margin and base of first segment black. Length .25 inch.

Hab.—Missouri, (C. V. Riley).

Selandria parca.—♂.—Small, robust, black; mouth piceous; antennæ shorter than head and thorax, robust, third joint thickened, much longer than the fourth; tegulæ and spot before pale; wings hyaline, iridescent, nervures and stigma fuscous, lanceolate cell petiolate, under wing with one middle cell; tips of femora, tibiæ and base of tarsi white; abdomen short, about as long as head and thorax, shining black. Length .18 inch.

Hab.—Texas, (Belfrage).

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Selandria scelesta.—♂.—Deep shining black; antennæ long, thickened at base, slender at tips, joints 3—6 about equal in length; wings smoky-hyaline or pale fuliginous, iridescent, nervures and stigma black, lanceolate cell petiolate, under wing with one middle cell; anterior legs more or less pale in front; abdomen depressed. Length .25 inch.

Hab.—Nevada, Colorado, (Morrison).

Subgenus *Hoplocampa* Hartig.

Selandria spissipes.—♀.—Robust; head black, tip of clypeus, labrum and palpi, pale; antennæ shorter than head and thorax, black, third joint much longer than fourth: thorax black, shining, prothorax and tegulæ, sides of pleura more or less, dull luteous; sometimes the mesothorax is more or less varied with brown; wings faintly tinged with dusky, nervures and stigma fuscous, lanceolate cell subcontracted in the middle, under wing with one middle cell; legs short, robust, luteous, two posterior pairs unusually robust, posterior tarsi short and thickened, coxæ more or less brown; abdomen short, robust, brown, apex and venter more or less dull luteous. Length .25 inch.

Hab.—Colorado, (Morrison).

Selandria gentilis.—♂.—Black, shining; face between and beneath antennæ, clypeus, labrum, anterior orbits, lower posterior orbits, mandibles except tips, palpi, upper margin of prothorax, spot on each side, line on sides of pleura, pectus, spot above middle coxæ, margin of tegulæ, four anterior coxæ, trochanters and venter, white; clypeus broadly emarginate at tip; antennæ shorter than head and thorax, robust, third joint a little longer than fourth; wings faintly dusky, nervures and stigma brown, lanceolate cell subcontracted in middle, under wing with two middle cells; four anterior legs luteous, black behind; posterior coxæ black, tips beneath and broad stripe on sides, white, their femora, tibiæ and tarsi brown or black, extreme base and apex beneath of their femora, white; abdomen depressed, longer than head and thorax, extreme apex more or less whitish. Length .25 inch.

Hab.—Colorado, (Morrison).

Selandria lenis.—♂.—Black, shining; mouth piceous; antennæ shorter than head and thorax, third joint a little longer than fourth; upper angles of prothorax and tegulæ, dull luteous; wings subhyaline, slightly smoky, nervures and stigma brown, lanceolate cell subcontracted in middle, under wing with one large middle cell; coxæ and trochanters black, femora pale yellowish, tibiæ and tarsi whitish, tips of latter dusky; abdomen depressed, a little longer than head and thorax, dull luteous above, with the two or three apical segments black; venter black, the basal segments more or less pale. Length .25 inch.

Hab.—Colorado, (Morrison).

Subgenus ———?

Selandria sodalis.—♀.—Robust, black, shining; antennæ short, third and fourth joints subequal; thorax, except metathorax and pectus, yellowish-ferruginous; wings fuliginous, nervures and stigma black, lanceolate cell with short robust straight cross-nervure, under wing with one large middle cell; anterior tibiæ pale in front; abdomen short and robust. Length .26 inch.

Hab.—Colorado, (Morrison).

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Subgenus *Eriocampa* Hartig.

Selandria obscurata.—♂ ♀.—Black; antennæ short, robust, third and fourth joints about equal in length; tip of labrum, narrow upper margin of prothorax, tegulæ, knees, four anterior tibiæ, and base of posterior tibiæ of ♀, whitish; wings more or less tinged with fuliginous towards base, nervures and stigma fuscous, lanceolate cell with oblique cross-nervure, under wing with one middle cell; abdomen of ♀ broad, short, of ♂ longer and narrower, the segments above with a lateral ovate dull luteous spot, very obscure in ♀. Length .23—.25 inch.

Hab.—Colorado, (Morrison). The ornamentation of the abdomen of this species resembles that of *Emphytus maculatus*.

Selandria Belfragei.—♀.—Robust, black; mouth obscurely dull testaceous; antennæ short, third joint nearly twice the length of fourth; pro- and mesothorax and tubercles yellowish-ferruginous; tegulæ pale yellow; wings faintly dusky, nervures and stigma black, lanceolate cell with oblique cross-nervure, under wing with one middle cell; trochanters more or less, tips of femora, tibiæ, and tarsi except tips, whitish; abdomen short, robust, scarcely longer than head and thorax. Length .25 inch.

Hab.—Texas, (Belfrage).

Subgenus *Selandria* Hartig.

Selandria decolorata.—♂.—Black; head unusually transverse, eyes prominent; antennæ as long as head and thorax, unusually robust, third joint a little longer than fourth; tegulæ and legs except coxæ and trochanters, pale yellowish-white; wings tinged with dusky towards base, nervures and stigma pale fuscous, lanceolate cell without cross-nervure, under wing with one long middle cell; abdomen longer than head and thorax, depressed, dull yellowish, black at extreme base. Length .25 inch.

Hab.—Colorado, (Morrison).

Selandria curialis.—♀.—Black, shining; clypeus more or less, narrow upper margin of prothorax, spot on tegulæ, trochanters, four anterior femora in front, all the tibiæ except tips, and base of their tarsi, white; antennæ about as long as head and thorax, medial joints thickened, third joint longer than fourth; lower ocellus in a broad shallow basin; wings subhyaline, nervures and stigma black, lanceolate cell without cross-nervure, under wing with two long middle cells. Length .28 inch.

♂.—Narrower than ♀; four anterior tibiæ are black behind and the posterior pair are black, with a white line above extending from base nearly two-thirds to tip, their tarsi entirely black; abdomen longer and narrower. Length .26 inch.

Hab.—Mexico, (Sumichrast).

ALLANTUS Panz.

Allantus opimus.—♀.—Robust, dull black; clypeus, labrum, mandibles except tips, palpi, spot on sides of collar, posterior angles of prothorax, scutellum, spot on pleura posteriorly, two spots above posterior coxæ, most of legs, spot on sides of basal plates, spot on sides of first abdominal segment above, line on sides of second, and band more or less sinuous anteriorly, on

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apical margin of remaining segments above and beneath, all luteous-yellow; antennæ short, subclavate, eight-jointed, third joint twice the length of fourth; wings yellowish-hyaline, nervures fuscous; coxæ, trochanters, posterior femora above and tips of their tibiæ within, black; tarsi more or less dusky; abdomen short, robust. Length .40 inch.

♂.—Less robust; posterior tarsi longer, and subdilated, black above, all the coxæ mostly pale; abdomen luteous, basal plates, the first segment, and basal middle more or less of remaining segments above black. Length .35 inch.

Hab.—Vancouver's Island, (Crotch).

Allantus ornaticeps.—♀.—Black, shining; the face beneath antennæ, clypeus, labrum, spot above insertion of each antenna, elongate spot on anterior orbits near summit of eyes, a broad line on cheeks, narrowed above and continued on posterior margin to a point opposite the summit of the eye where it is pointed, mandibles except tips, palpi, anterior margin of collar, upper angles of prothorax broadly, tegulæ, scutellum, postscutellum, basal plates, elongate spot or line on pleura, and spot above middle coxæ, all lemon-yellow; head large, subquadrate; clypeus deeply notched; antennæ shorter than head and thorax, thickened medially, pointed at tip, nine-jointed, joint three much longer than four; wings yellow-hyaline, faintly dusky towards apex, nervures fuscous, stigma honey-yellow; legs yellow, coxæ mostly and line on four posterior femora within black, tarsi tinged with fulvous; abdomen as long as head and thorax, yellow, base of the first three or four segments more or less black. Length .40—.50 inch.

♂.—Pleura entirely and most of coxæ, yellow; posterior tibiæ and tarsi tinged with fulvous, the latter longer and somewhat dilated at base; abdomen longer, the base of all the dorsal segments sometimes narrowly black. Length .50 inch.

Hab.—Nevada, (Morrison).

Allantus nigriceps.—♀.—Black; clypeus, labrum, mandibles except tips, palpi, most of prothorax, scutellum, postscutellum, most of basal plates, and spot above middle coxæ, yellowish-white; clypeus deeply emarginate; tips of mandibles ferruginous; antennæ short, thickened towards the tip which is pointed, nine-jointed, third joint nearly twice the length of the fourth; thorax above opaque, densely rugulose, pleura finely punctured; wings yellowish, stained with pale fuscous, nervures blackish, stigma and costal nerve fulvous; tips of four anterior coxæ, their trochanters beneath, their femora except base, and all the tibiæ except posterior pair at tips within, yellowish-white; tarsi pale fulvous; abdomen rather longer than head and thorax, depressed above, slightly broader towards apex, shining, a luteous or yellowish band at tip of all the segments above, narrow and sometimes interrupted medially on the first but becoming gradually broader on remaining segments; sometimes the first segment is entirely black except at sides; venter black more or less distinctly banded with luteous. Length .50—.55 inch.

♂.—Black; clypeus, labrum, base of mandibles, palpi, a large spot on sides of prothorax, spot above anterior coxæ, scutellum except tip, line or two spots on postscutellum, two spots above middle coxæ, legs except coxæ, trochanters and femora above more or less, and tips of posterior tibiæ within, sides and apical margin of basal plates, and the abdomen entirely except basal two-thirds of first segment above, all yellowish-white or luteous; abdomen flattened,

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sides parallel; tarsi lengthened and thickened, especially the posterior pair. Length .45—.50 inch.

Hab.—Nevada, (Morrison). Closely resembles *ornaticeps*, but the head above antennæ and the cheeks are entirely black.

Allantus elegantulus.—♀.—Black, shining; two spots above insertion of antennæ, clypeus, labrum, spot beneath eyes, mandibles except tips, prothorax, line or spot on sides of anterior lobe of mesothorax, scutellum, line on postscutellum, large oblique mark on pleura, small triangular spot on pectus in front of middle coxæ, spot above posterior coxæ, tegulæ, most of legs, basal plates, band on posterior margin of abdominal segments dilated laterally, and venter except apex, all green or greenish-yellow; antennæ nine-jointed, third joint longer than fourth; wings hyaline, dusky on apical third; posterior coxæ except tips, apical third or half of their femora, tips of four posterior tibiæ, the posterior tarsi more or less, and tips of the joints of two anterior pairs, black. Length .36 inch.

♂.—Posterior coxæ beneath and sides, most of pectus, and sometimes the whole of abdominal segments 2—4, greenish-yellow; the two or three apical segments black, the posterior femora are mostly black above. Length .35 inch.

Hab.—Nevada, (Morrison). This is closely allied to *annularis* Norton, but easily distinguished by the entirely black antennæ.

Allantus limbatus.—♀.—Black, shining; two spots above insertion of antennæ, line on anterior orbits, sometimes nearly reaching the occiput, most of cheeks, clypeus, labrum, mandibles except tips, palpi, most of prothorax, lateral margin of anterior lobe of mesothorax, transverse spot on base of scutellum, large deeply notched mark on pleura, two spots on pectus, sometimes confluent, sometimes wanting, spot above posterior coxæ, tegulæ, coxæ, trochanters and legs beneath, lateral margin of abdomen above, and most of venter, luteous yellow or soiled white; antennæ short, slightly thickened beyond the middle, third joint much longer than the fourth; wings hyaline, nervures fuscous. Length .40 inch.

Hab.—California, (H. Edwards).

Allantus afflictus.—♀.—Deep black, shining; clypeus, labrum, mandibles except tips, palpi, sometimes a dot at summit of eyes, narrow lower anterior orbits, lower half of cheeks, upper corners of prothorax, spot on sides of pectus, elongate spot on sides of pleura, spot above intermediate coxæ, all the coxæ and trochanters more or less, four anterior legs in front, posterior femora at base beneath, and extreme sides of basal plates, all white; wings tinged with fuscous, nervures and stigma black; abdomen smooth and rather depressed. Length .40 inch.

♂.—Narrower, and marked like the ♀ except that the white spot at summit of eyes, lower anterior orbits and spot at sides of basal plates are wanting, and the posterior femora have a white line on under side. Length .35 inch.

Hab.—Nevada, (Morrison).

Allantus nevadensis.—♀.—Black; clypeus, labrum, mandibles except tips, lower part of cheeks, spot on sides of collar, posterior angles of prothorax, sublunate line on pleura, spot on tegulæ, spot above posterior coxæ, four anterior coxæ except base, tips of posterior pair and broad line on sides, four anterior

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legs before, and spot on extreme sides of basal plates, all white; wings hyaline, pale fuscous on apical half, nervures and stigma black; posterior femora more or less, and abdomen except two or three basal segments, ferruginous; sometimes the tips of posterior femora, and their tibiæ except pale line beneath, are black; abdomen short, about as long as head and thorax. Length .35 inch.

Hab.—Nevada, (Morrison).

Allantus occidaneus.—♀.—Black, shining; dot at summit of eyes, lower half of cheeks, clypeus, labrum, mandibles except tips, palpi, posterior angles of prothorax, subangular line on pleura, two dots on pectus immediately in front of middle coxæ, tegulæ, spot above posterior coxæ, the legs beneath, and sides of basal plates, white; clypeus deeply emarginate; antennæ short, nine-jointed, slightly thickened beyond middle, third joint nearly as long as fourth and fifth together; wings hyaline, slightly dusky towards tips, nervures and stigma black; abdomen fulvo-ferruginous, basal plates except sides, and the first segment, black. Length .45 inch.

Hab.—Colorado, New Mexico. The specimen from New Mexico has the posterior femora and tibiæ ferruginous beneath.

MACROPHYA Dahlb.

Macrophya annulipes.—♀.—Black, head and thorax closely punctured; labrum, upper margin of prothorax narrowly, spot on tegulæ, knees, tibiæ except tips, four anterior tarsi except tips, base of posterior pair, and apical margin of basal plates, yellowish-white; wings subhyaline, nervures and stigma black, lanceolate cell with short, straight cross-line; abdomen smooth and polished. Length .30 inch.

Hab.—Nevada, (Morrison).

Macrophya maura.—♀.—Deep black, shining, sparsely punctured except on face and pleura which are closely so; two dots at base of labrum, spot at base of mandibles, tips of anterior femora and their tibiæ in front, and spot or short line on upper side of posterior tibiæ near apex, white; wings pale fuliginous, with a violet reflection, lanceolate cell contracted in middle. Length .35 inch.

Hab.—Nevada, (Morrison).

Macrophya jugosa.—♂.—Black, shining; clypeus, labrum, spot at base of mandibles, palpi, dot on tegulæ anteriorly, all the coxæ beneath, trochanters, four anterior femora and tibiæ beneath, most of their tarsi, and spot at tip of posterior tibiæ above, white; sometimes the posterior femora has a white line beneath; head broad, eyes large and prominent; antennæ as long as head and thorax, third joint about as long as the two following combined; vertex and mesothorax strongly punctured; wings hyaline, apical third fuliginous, nervures and stigma black, lanceolate cell contracted in middle. Length .35 inch.

Hab.—California, (H. Edwards).

Macrophya subviolacea.—♀.—Shining black, with a slight violaceous reflection; head and sides of thorax finely punctured, base of mandibles and palpi whitish; antennæ scarcely as long as head and thorax; eyes large and unusually prominent, the vertex flat, giving the head a somewhat trans-

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versely compressed appearance; wings fuliginous, lanceolate cell contracted in middle; anterior femora and tibiæ with a pale line beneath; abdomen polished, immaculate. Length .35 inch.

Hab.—California, (H. Edwards).

Macrophya oregona.—♀.—Black; anterior margin of clypeus, labrum, most of palpi, more or less of joints 4—7 of antennæ within, spot on scutellum, line on four anterior coxæ laterally, large elongate spot on outer basal side of posterior pair, all the trochanters, line on four anterior femora at tip, line on their tibiæ before, spot at tip of posterior tibiæ above and base of terminal joint of all the tarsi, white; antennæ as long as head and thorax, third joint as long as fourth and fifth together; vertex and mesothorax closely punctured; wings hyaline, slightly dusky on apical third, nervures and stigma fuscous or black, lanceolate cell contracted in middle; abdomen smooth and shining. Length .37 inch.

Hab.—Oregon, (H. Edwards).

Macrophya succincta.—♀.—Short, robust, black; head and thorax closely and confluently punctured, opaque; clypeus, labrum, spot on base of mandibles, palpi, two basal joints of antennæ and base of third, posterior angles of prothorax, sometimes two spots on disk of mesothorax, ovate spot on pleura, sometimes much reduced or wanting, scutellum, tegulæ, tips of coxæ, trochanters, four anterior legs, posterior femora and tibiæ except tips, base of their tarsi, basal plates, and narrow apical margin of abdominal segments above, sometimes obscurely so, yellowish-white; wings yellowish-hyaline, nervures fuscous, stigma and costal nervure fulvous, lanceolate cell contracted in middle; antennæ thickened towards tip. Length .35 inch.

Hab.—Georgia, (Morrison); Texas, (Belfrage). Allied to *intermedia* Norton.

Macrophya bicolorata.—♀.—Black; vertex flattened, closely punctured, eyes very prominent; antennæ not longer than head and thorax, rather slender; wings pale fuscous, nervures black, lanceolate cell contracted in middle; abdomen except basal plates, which are subviolaceous, bright ferruginous or sanguineous. Length .36 inch.

Hab.—California, (H. Edwards).

STRONGYLOGASTER Dahlb.

Strongylogaster fidus.—♀.—Black, shining; clypeus more or less, labrum, mandibles except tips, palpi, dot at summit of eyes, posterior angles of prothorax, tegulæ, and tips of coxæ, whitish; femora and tibiæ fulvous or ferruginous, tarsi fuscous; wings faintly dusky, nervures black, base of stigma pale, lanceolate cell with oblique cross-line, under wing without middle cell; abdominal segments 2—5 except lateral margin, fulvous, middle of venter sometimes pale. Length .30—.35 inch.

Hab.—Colorado, Nevada, (Morrison); California, (H. Edwards).

Strongylogaster tibialis.—♀.—Black, shining; palpi, posterior angles of prothorax, tegulæ, tips of femora, four anterior tibiæ, and basal fourth of posterior pair, white; wings hyaline, nervures fuscous, lanceolate cell with oblique cross-line, under wing with two middle cells; posterior margin of first

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abdominal segment, the second, third and fourth segments except band or spots at base, and sides of fifth and sixth segments, yellow or honey-yellow; venter more or less pale. Length .35 inch.

Hab.—Nevada, (Morrison).

Strongylogaster rubripes.—♀.—Black, shining; labrum, base of mandibles, palpi, posterior angles of prothorax, tegulæ and tips of coxæ, dull whitish; wings smoky hyaline, nervures black, base of stigma pale, lanceolate cell with oblique cross-line, under wing without middle cell; femora, tibiæ and base of anterior tarsi pale ferruginous; abdomen entirely black. Length .32 inch.

Hab.—Colorado, (Morrison).

Strongylogaster politus Provancher.—♀.—Black, shining; palpi, upper posterior angles of prothorax, tegulæ, tips of coxæ, trochanters, four anterior femora except line above, tips of posterior pair, four anterior tibiæ, and base of posterior pair, all whitish or yellowish-white; wings hyaline, iridescent, nervures and stigma black, lanceolate cell without cross-line, under wing with two middle cells; tips of intermediate tibiæ, the posterior pair except base and all the tarsi fuscous; abdomen depressed, slightly widened medially, apical margin of segments 2—5 above narrowly pale. Length .25 inch.

Hab.—Canada, (Provancher).

Strongylogaster soriculatipes Provancher.—♀.-Long, cylindrical, shining black, or piceous; clypeus, labrum, palpi, lateral angles of prothorax, tegulæ, knees and base of tibiæ, white; wings hyaline, nervures black, stigma and costal nervure fuscous, lanceolate cell without cross-line, under wing with two middle cells; most of legs, sides of abdominal segments one and two and base of venter, honey-yellow; apical two-thirds of posterior tibiæ and their tarsi blackish. Length .33 inch.

Hab.—Canada; Illinois.

TENTHREDO Leach.

Tenthredo obscuripennis.—♀.—Ferruginous; head large, broader than thorax, clypeus deeply emarginate; clypeus, labrum, palpi, and base of mandibles white; antennæ as long as head and thorax, black, two basal joints ferruginous, first joint of flagellum one-fourth longer than second; sides of prothorax, pectus and base of venter sometimes more or less black; wings uniformly fuscous. Length .40—.45 inch.

Hab.—Nevada, California, (H. Edwards, Morrison). Closely allied to *xanthus* Norton.

Tenthredo scævola.—♀.—Black, shining; anterior orbits, sometimes interrupted above antennæ, face, clypeus, labrum, lower two-thirds of cheeks, mandibles except tips, palpi, most of prothorax, scutellum, large subtriangular mark on pleura, spot above posterior coxæ, tegulæ, coxæ, trochanters, femora except black line above, narrow posterior margin of basal plates, spot on sides, lateral margin of abdomen above and most of venter, all pale yellow; wings slightly tinged with yellowish, nervures blackish, base of stigma and costal nervure fulvous; tips of posterior tibiæ, all the tibiæ and tarsi more or less and

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the fourth and following segments of abdomen, fulvo-ferruginous. Length .45 inch.

Hab.—Nevada. (Morrison).

Tenthredo lacticincta.—♀.—Black, shining; two spots above insertion of antennæ, dot at summit of eyes, clypeus, labrum, mandibles except tips, palpi, lower half of cheeks, most of prothorax, large suboblique mark or stripe on pleura, spot above posterior coxæ, tegulæ, most of legs, and basal plates, lemon-yellow; wings slightly tinged with yellowish, faintly dusky at tips, nervures fuscous, stigma and costal nervure fulvous; tips of intermediate tibiæ above and line on posterior femora above sometimes confined to apical half, black, tips of posterior tibiæ and the tarsi dull fulvous, or pale fuscous; fourth and following segments of abdomen dull fulvous. Length .45 inch.

♂.—More slender; pleura, except upper margin, and pectus entirely yellow; four posterior tibiæ with black line above, posterior tarsi larger and more robust; abdomen above except base of first and second segments pale fulvous, venter yellow at base, shading into fulvous at tip; black spot on disk of basal plates. Length .45 inch.

Hab.—Nevada. (Morrison).

Tenthredo suavis.—♂.—Head black, eyes large and unusually prominent, face narrow; short line on inner orbit of eyes near summit, most of cheeks, spot between antennæ, two tubercles at base above, clypeus, labrum, mandibles except tips and palpi, white; antennæ about as long as head and thorax, black, third joint much longer than fourth; thorax white, line on prothorax above, mesothorax, lateral scutellar region, and sutures of pleura posteriorly, black; scutellum, line on postscutellum and tegulæ, white; wings subhyaline, nervures and stigma fuscous; legs yellowish-white, black line on femora above, most of posterior tibiæ and their tarsi fulvous; abdomen long, narrow, yellowish-white, base of basal plates and of first segment black, apex of fourth and the following segments fulvous. Length .50 inch.

Hab.—Nevada, (Morrison). Allied to *lacticincta*.

Tenthredo bella.—♀.—Slender, black; clypeus, labrum, mandibles except tips, palpi, spot beneath eyes, posterior angles of prothorax, spot above posterior coxæ, tegulæ, and basal plates more or less, yellowish-white; scape fulvous beneath; wings tinged with yellowish, nervures fuscous; legs yellowish, varied with fulvous, coxæ except tips, most of intermediate femora above, posterior pair except base and apex of their tibiæ, black; posterior tarsi fuscous; abdomen shining, fourth segment fulvous or ferruginous. Length .40 inch.

♀ var.—Tips of four posterior femora and of their tibiæ fulvous; fourth and following segments of abdomen fulvo-ferruginous, shading into fuscous at tip. Length .40 inch.

Hab.—Colorado, (Morrison).

Tenthredo inteipes.—♀.—Black; clypeus, labrum, mandibles except tips, palpi, spot beneath eyes, posterior angles of prothorax, spot above posterior coxæ, tegulæ, trochanters, femora, tibiæ and tarsi beneath, and spot on sides of basal plates, all straw-white; wings faintly dusky, nervures black; fourth and following segments of abdomen ferruginous. Length .40 inch.

Hab.—Nevada, (Morrison).

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Tenthredo parvula.—♂.—Very small, black; spot at summit of eyes, two dots above insertion of antennæ, most of cheeks, clypeus, labrum, mandibles except tips, palpi, posterior angles of prothorax, broken line and spot on pleura, line above intermediate coxæ, spot above posterior pair, tegulæ, all the legs beneath and spot on sides of basal plates, all yellowish-white; wings hyaline, nervures black; abdomen ferruginous, basal plates, first segment and basal margin of second, black. Length .24 inch.

Hab.—California, (Crotch).

Tenthredo nupera.—♂.—Black; two spots above insertion of antennæ, dot at summit of eyes, narrow anterior orbits, lower half of cheeks, clypeus, labrum, mandibles except tips, palpi, upper posterior angles of prothorax, sometimes obsolete, pectus, spot or line on pleura, generally confluent with spot covering the pectus, spot above posterior coxæ, tegulæ, all the coxæ except base above, trochanters, and four anterior femora except black line above, pale yellow; wings slightly tinged with dusky, nervures fuscous or black; posterior femora except black line above, four posterior tibiæ and tarsi, and the abdomen entirely, sanguineous. Length .35—.40 inch.

Hab.—Nevada, (Morrison).

Tenthredo rubella.—♂.—Black; spot beneath eyes, clypeus, labrum, mandibles except tips, palpi, line on lower part of pleura, spot on pectus, and four anterior coxæ and trochanters beneath, pale yellow; posterior angles of prothorax, sometimes spots or stains on thorax above and on sides, remainder of legs, except sometimes a line on coxæ and femora above, and the abdomen entirely bright fulvo-ferruginous or sanguineous; wings fuliginous, with an æneous reflection, nervures and stigma black; posterior tibiæ and tarsi more or less fuscous, the apical joints of the latter yellowish; apex of abdomen sometimes dusky. Length .50 inch.

Hab.—Nevada, (Morrison).

Tenthredo ferrugineipes.—♀.—Black, shining; dot at summit of eyes, lower anterior orbits, spot on middle of face, all sometimes wanting, spot beneath eyes, clypeus, labrum, mandibles except tips, palpi, posterior angles of prothorax, spot above posterior coxæ and tegulæ, and spot on sides of basal plates, sometimes wanting, all pale yellow; wings tinged with yellowish, nervures fuscous; legs except coxæ, and trochanters above, ferruginous, anterior pair more or less yellowish; the fourth and following segments of abdomen, ferruginous; sometimes the second and third segments above are varied with ferruginous. Length .45 inch.

Hab.—Colorado, (Morrison).

Tenthredo sectilis.—♀.—Black, shining; clypeus, labrum, mandibles except tips, palpi, tegulæ, sometimes two spots above posterior coxæ, and anterior legs before, white; wings more or less smoky, with a slight violaceous reflection, nervures black; legs except coxæ, trochanters and sometimes a line on anterior pair above, fulvo-ferruginous; abdomen with the fourth and following segments more or less brown-ferruginous. Length .40 inch.

♀ var.—Tegulæ black; tips of posterior tibiæ and their tarsi more or less fuscous or black, sometimes only the fourth abdominal segment ferruginous.

Hab.—Colorado, Nevada, (Morrison).

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Tenthredo morosa.—♂.—Dull black; tips of mandibles ferruginous; palpi pale; femora, tibiæ and four anterior tarsi, except black line above ferruginous; posterior tarsi black; wings pale smoky, subviolaceous, nervures black; abdomen ferruginous, basal plates, first segment, and stains at sides of the two or three following segments black. Length .43 inch.

Hab.—Colorado, (Morrison).

Tenthredo rubeola.—♂.—Short, black; two spots on clypeus, labrum, spot beneath eyes, mandibles except tips, palpi, two spots on pectus, all the coxæ and trochanters beneath more or less, and the four anterior femora beneath, white; wings fuscous, violaceous, nervures black; posterior femora, tips of intermediate tibiæ, and all the tibiæ and tarsi ferruginous, posterior tarsi more or less dusky: abdomen ferruginous, basal plates black. Length .35 inch.

Hab.—Nevada, (Morrison).

Tenthredo mimula.—♂.—Dull black; spot beneath eyes, sometimes wanting, clypeus, labrum, mandibles except tips, palpi, sometimes line on pleura, or two spots on pectus, or spot above posterior coxæ, white; wings smoky hyaline, subviolaceous; legs ferruginous, anterior pair and coxæ beneath paler, posterior coxæ above, line on all the femora above and posterior tibiæ and tarsi entirely, black; abdomen ferruginous, with base and apex black; sometimes black with only the middle of segments 2—4 ferruginous. Length .40—.45 inch.

Hab.—Colorado, (Morrison).

Tenthredo occidentalis.—♀.—Black; clypeus, labrum, mandibles except tips, palpi, posterior angles of prothorax, spot above posterior coxæ, tegulæ, tips of anterior coxæ, line on four anterior femora, tibiæ and tarsi beneath, and sometimes a spot on sides of basal plates, all white; wings faintly dusky, nervures and stigma black, the latter pale at base; fourth and fifth segments of abdomen above more or less ferruginous. Length .40—.45 inch.

Hab.—Colorado, (Morrison). Allied to *piceocincta* Norton.

Tenthredo lateraria.—♀.—Black; face beneath antennæ abruptly declivous; anterior orbits continued beyond summit of eyes and curved inwardly, face beneath antennæ, most of cheeks, clypeus except basal suture, labrum, spot at base of mandibles, palpi, upper lateral margin of prothorax, scutellum, line on postscutellum, ovate spot on pleura, two spots above middle coxæ, tegulæ, tips of coxæ, remainder of legs except tips of tibiæ and more or less of tarsi, and broad lateral apical margin, pointed within, of each abdominal segment, all dull yellowish-white or luteous; clypeus deeply and squarely emarginate; antennæ scarcely as long as head and thorax, third joint longer than fourth; wings tinged with yellowish, stigma fuscous, pale at base. Length .40 inch.

Hab.—California, (H. Edwards).

Tenthredo addenda.—♀.—Form rather short, broad, depressed, black, shining; narrow anterior orbits, interrupted before summit, broad posterior orbits not reaching summit, middle of face, clypeus, labrum, base of mandibles, palpi, broad upper margin of prothorax, spots on pectus, tegulæ, oblique spot on sides of pleura, line on posterior margin, spot above intermediate coxæ,

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scutellum, two dots and short line behind, coxæ, trochanters, femora, except black spot at tip of posterior pair, tibiæ, except line on anterior pair behind, and tips of two posterior pairs, triangular spots at extreme sides of abdominal segments above, spot on apical segment above, and narrow apical margin of ventral segments, all yellow or yellowish-white; wings faintly dusky, nervures and stigma black, the latter pale at base. Length .35 inch.

♀ var.—Spot on sides of pleura very large; wings clearer; line on anterior legs above, spot at tip of intermediate femora, line on their tibiæ and interrupted line on posterior femora above, black. Length .40 inch.

Hab.—Colorado, Nevada, (Morrison).

Tenthredo vittatipes.—♂.—Black, shining; head beneath antennæ, spot at summit of eyes, scape beneath, most of prothorax, pectus, pleura except oblique line beneath wings, legs except black stripe above, venter and lateral margin of dorsal segments, greenish-white; head much broader than thorax, face deeply impressed, eyes large and prominent; tips of mandibles black; flagellum obscure pale beneath; wings hyaline, nervures and stigma black; posterior tarsi mostly black; abdomen depressed. Length .30 inch.

Hab.—Nevada, (Morrison). Four specimens. This may prove to be the ♂ of *addenda*.

Tenthredo rubens.—♂.—Black, shining; head smaller, more transverse than usual; sometimes a slender line on upper anterior orbits, and labrum white; palpi and antennæ beneath pale testaceous, the latter longer than usual; thorax entirely black, except sometimes a pale line on upper posterior margin of prothorax, a dot on tegulæ, or two dots on scutellum; clypeus not emarginate, third joint of antennæ longer than fourth; legs ferruginous, anterior pair and tarsi paler, coxæ, trochanters, and base of femora, black; wings smoky hyaline, nervures black, stigma and costal nervure more or less yellowish; abdomen ferruginous, basal plates and sometimes the two or three apical segments black. Length .32—.40 inch.

Hab.—Nevada, (Morrison).

Tenthredo diluta.—♀.—Ferruginous; head smaller than usual, not broader than thorax, clypeus not emarginate; clypeus, labrum, base of mandibles, upper lateral margin of prothorax, scutellum, spot above posterior coxæ, and most of the coxæ and trochanters, white; pectus with a black spot before middle coxæ; antennæ slender, as long as head and thorax, third joint longer than fourth; wings faintly dusky, stigma yellowish, under wings without middle cell; tarsi mostly pale yellow. Length .40 inch.

Hab.—California, (Crotch).

Tenthredo Edwardsii.—♀.—Shining-black; head a little narrower than thorax; orbits, interrupted behind near summit of eyes, spot between base of antennæ, clypeus, labrum, base of mandibles, palpi, broad upper margin of prothorax, scutellum more or less, tegulæ, elongate spot on sides of pleura, spot above posterior coxæ, all the coxæ and trochanters more or less, anterior legs in front, and the posterior tarsi, all yellowish-white; wings subhyaline, dusky on apical third or half, nervures black, stigma except base, and the costal nerve, yellowish; second recurrent nervure generally coinciding with second transverse cubital nervure, second submarginal cell receiving the

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first recurrent nervure a little before the middle, under wing generally with one middle cell; femora, tibiæ and abdomen, except basal segment, fulvo-ferruginous; antennæ dull testaceous beneath, slender, attenuated at tip, third joint longer than fourth, which is equal in length with the fifth, terminal joint slender, flattened; a deep longitudinal groove on each side of ocelli extending back to occiput, which is acutely margined; clypeus transverse, broadly emarginate at tip, labrum large; mesothorax prominently trilobed, the middle lobe deeply longitudinally impressed medially; abdomen robust. Length .40—.50 inch.

Hab.—Nevada, California, (H. Edwards, Morrison). In this fine species the neuration of both wings is exceedingly variable, the marginal cross-nervure is sometimes abbreviated, so that the posterior half is obliterated, and specimens will doubtless occur with but one marginal cell; the second submarginal cell sometimes receives both recurrent nervures, and occasionally the second and third each receive one; the under wing has either two, one or no middle cells, and sometimes the same specimen will have a middle cell on one side and none on the other.

LOPHYRUS Latr.

Lophyrus lateralis.—♀.—Piceous; head and thorax thickly punctured, covered with a rather dense very short pale sericeous pile; anterior margin of clypeus, labrum, palpi and scape beneath pale; antennæ about eighteen-jointed; posterior angles of prothorax, tegulæ, and large mark on pleura, pale; wings hyaline, slightly dusky at tips, nervures fuscous, lanceolate cell with nearly straight cross-nervure; legs dull whitish or luteous, base of coxæ and femora except tips black; sides of abdomen with a rather broad luteous line; middle of venter more or less pale. Length .32 inch.

Hab.—Georgia, (Morrison).

Lophyrus Rileyi.—♀.—Luteous-yellow, head tinged with fulvous, mandibles castaneous at tip; antennæ black, eighteen-jointed, short, strongly serrate, two basal joints pale; large triangular spot on middle lobe of mesothorax, stripe on side lobes and lateral scutellar region, blackish; scutellum coarsely pitted; wings hyaline, nervures brown, most of stigma luteous, lanceolate cell with nearly straight cross-nervure, dividing nervure between first and second submarginal cells incomplete; femora, tips of tibiæ and more or less of tarsi tinged with fulvous; abdomen paler on sides and at base beneath. Length .30 inch.

Hab.—Florida, (C. V. Riley).

Lophyrus fulviceps.—♀.—Head fulvous, mandibles piceous; antennæ about nineteen-jointed, black, scape pale; thorax generally black or brown above, luteous beneath, sometimes the side lobes and scutellum are fulvous or luteous, sometimes the pectus has a brown spot or line on each side; prothorax and tegulæ more or less luteous or fulvous; wings hyaline, beautifully iridescent, nervures brown, lanceolate cell with straight cross-nervure; legs luteous, femora, tips of tibiæ and tarsi fulvous; abdomen black or brown, with lateral margin and middle of venter luteous. Length .35 inch.

Hab.—Nevada, (Morrison).

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Lophyrus melliceps.—♀.—Black, shining; head, prothorax and anterior lobe of mesothorax, honey-yellow; a black curved line on vertex just above antennæ, covering the ocelli; mandibles brown; antennæ short, about fourteen-jointed, entirely black; wings hyaline, iridescent, nervures brown, lanceolate cell contracted in middle; legs luteous, four posterior coxæ except tips, and tarsi fuscous; extreme apex of abdomen and broad line on sides, luteous. Length .30 inch.

Hab.—Massachusetts, (Henshaw). This belongs to the subgenus *Monoctenus* Dahlb.

Lophyrus suffusus.—♀.—Luteous yellow, shining, head and thorax tinged with fulvous; a semicircular line on vertex covering ocelli, tips of mandibles, antennæ, stripe on each lateral lobe of mesothorax, lateral scutellar region, tip of scutellum, metathorax, posterior portion of pectus, anterior margin of basal plates, sides more or less of three or four basal segments of abdomen, and most of venter, black; antennæ short, serrate, fifteen-jointed; mesothorax and scutellum smooth and polished; wings hyaline, nervures and stigma black or fuscous, dividing nervure between first and second submarginal cells hyaline, lanceolate cell contracted in middle; tips of tarsi fuscous. Length .30 inch.

Hab.—Massachusetts. Belongs to the subgenus *Monoctenus* Dahlb.

LYDA Fabr.

Lyda discolor.—♀.—Ochraceous, varied with pale brown; head behind ocelli more or less pale brown, with the usual pale spots and lines, generally indistinctly defined, spots enclosing the two posterior ocelli, and short line leading from anterior ocellus to base of antennæ, sometimes obsolete, black; antennæ slender, about thirty-four-jointed, scape black above, apical joints more or less dusky, third joint more than twice the length of the fourth; side lobes of mesothorax more or less pale brown; anterior margin of middle lobe of mesothorax black, as well as depression on sides of scutellum; base of postscutellum, spot on sides of metathorax above and basal margin of basal plates; thorax beneath pale ochraceous or luteous, the pectus more or less pale brown; wings hyaline, sometimes tinged with yellow, nervures and stigma luteous, second branchial cell without cross-nervure; legs dull honey-yellow, anterior tibiæ with one side spur; abdomen more or less tinged with pale brown above. Length .50 inch.

Hab.—Canada, Pennsylvania, Nevada.

Lyda verticalis.—♀.—Fusco-ferruginous, shining; palpi pale; a large irregular, transverse mark on vertex extending nearly to eyes, space between antennæ, basal margin of clypeus, scape, extreme apex of antennæ, spot on disk of mesothorax, one on each side lobe over tegulæ, anterior margin, metathorax, pleura posteriorly, pectus, all the coxæ and base of femora more or less, black; antennæ slender, about thirty-six-jointed, third joint about twice the length of fourth; wings subhyaline, with a golden gloss, and subviolaceous tips, third submarginal cell not longer than second, second branchial cell without cross-nervure; anterior tibiæ with one side spur; ventral segments more or less broadly black at base. Length .45 inch.

Hab.—California, (H. Edwards).

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Lyda similaris.—♀.—Ferruginous or fusco-ferruginous, shining; spot on sides of face, anterior margin of clypeus, base of mandibles and palpi, yellow; a transverse black band on vertex nearly reaching the eyes, sometimes reduced to lateral spot; antennæ honey-yellow, extreme tip black, thirty-two to thirty-six-jointed, third joint more than twice the length of fourth; spot on anterior margin of mesothorax and sutures of thorax narrowly, black; wings uniformly pale fuscous, with a brilliant golden gloss, second branchial cell without cross-nervure, third submarginal cell not longer than second; anterior tibiæ with one side spur; extreme apex of abdomen more or less dusky. Length .45 inch.

Hab.—Nevada, (Morrison). This may prove to be a variety of *verticalis*.

Lyda Morrisoni.—♀.—Yellow, or luteous-yellow; head above behind ocelli varies from black to fulvous, with the usual two oblong spots and a narrow line leading from summit of eyes to occiput, yellow; sometimes there is only a square black spot behind ocelli, with the oblong yellow spot on each side, and a spot behind each eye, pointed behind and reaching the occiput; tips of mandibles black; antennæ long, slender, pale at base, dusky at tips, from thirty-six to thirty-nine-jointed, third joint nearly three times the length of the fourth; thorax above more or less fulvous, sublunate spot on anterior middle of mesothorax, posterior margin more or less, and scutellum luteous-yellow; cordate spot on disk of mesothorax, middle of anterior margin, depressed space on sides of scutellum, postscutellum except sometimes its tip, and the metathorax above, black; sometimes the entire thorax is rufo-fulvous, without any markings; middle of pectus varies from fulvous to black; wings hyaline, more or less stained with yellowish, nervures fuscous, second branchial cell without cross-nervure; tibiæ and tarsi fulvous, anterior tibiæ with one side spur; abdomen above varies from fulvous-yellow to ferruginous, the basal plates and first and sometimes the second segments above, generally more or less black; venter luteous-yellow or fulvous. Length .55—.60 inch.

Hab.—Nevada, (Morrison). Allied to *brunnicans* Norton. Quite variable in color and markings.

Lyda atripes.—♀.—Dull black; cheeks, line behind eyes, two ovate spots behind ocelli, all confluent with line on occiput, sides of face, confluent with spot at summit of eyes, two spots behind base of antennæ, clypeus, mandibles except tips, palpi, posterior margin of prothorax, spot beneath, transverse spot on mesothorax anteriorly, confluent with two spots behind, scutellum, spot behind, large indented mark on pleura almost meeting on pectus, spot above middle coxæ, tegulæ and all the coxæ beneath more or less, white; wings yellowish-hyaline, with a golden reflection, nervures fuscous, second branchial cell without cross-nervure, third submarginal cell about as long as second; antennæ about thirty-four-jointed, testaceous, the scape and apical half of flagellum black, third joint more than twice the length of fourth; legs black, anterior tibiæ and tarsi dull testaceous, the former with one side spur, base of femora with pale spots or lines; abdomen fulvo-ferruginous, basal plates and apical segment black; ventral segments more or less black at base. Length .50 inch.

Hab.—North Carolina, (Morrison).

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Lyda luteomaculata.—♀.—Black; head and thorax marked as in *atripes*, except that the anterior spot on mesothorax is not confluent with those behind and the large mark on pleura is not indented; antennæ long, slender, about thirty-two-jointed, pale fulvous, scape and apex of flagellum black, third joint about twice the length of fourth; wings pale yellowish-hyaline, nervures fuscous, stigma and costa pale yellow, third submarginal cell longer than second, second branchial cell without cross-nervure; legs luteous, tibiæ and tarsi tinged with fulvous, coxæ pale yellowish, femora above more or less black, anterior tibiæ with one side spur; abdomen luteous, varied with brown, basal plates, first segment more or less and narrow apical margin of remaining segments above black, apex dusky, venter luteous. Length .50 inch.

Hab.—White Mountains, N. H., (Morrison).

Lyda nevadensis.—♂.—Black; clypeus, labrum, mandibles except tips, narrow anterior orbits, spot on sides of face, spot at summit of eyes, two small oblong spots behind ocelli sometimes wanting, line on cheeks sometimes continued on to occiput, two or three basal joints of antennæ, sublunate spot on anterior lobe of mesothorax sometimes much reduced or wanting, collar beneath, large oblique mark on pleura, spot on pectus in front of middle coxæ, and tegulæ, all yellow; head coarsely punctured above; antennæ long and slender, thirty-four to thirty-six-jointed, third joint more than twice the length of the fourth; wings hyaline, generally dusky towards tips, sometimes uniformly smoky-hyaline, nervures black, second branchial cell without cross-nervure; coxæ, trochanters and femora beneath luteous-yellow, tibiæ and tarsi honey-yellow, posterior pair more or less fuscous; anterior tibiæ with one side spur; abdomen fulvous or fulvo-ferruginous, basal plates and first two segments black. Length .45—.50 inch.

♂ var.—Antennæ more or less pale on basal half; thorax black immaculate; coxæ and femora except tip, black.

Hab.—Nevada, (Morrison). This may be the ♂ of *Morrisoni*.

Lyda montivaga.—♂.—Black, shining; spot at summit of eyes, lower posterior orbits, triangular spot on sides of face, clypeus, mandibles except tips, palpi and scape beneath, yellow; head sparsely punctured; antennæ long and slender, thirty-six to thirty-eight-jointed, third joint more than twice the length of fourth; wings hyaline, faintly dusky at tips, second branchial cell without cross-nervure; tibiæ and tarsi dull ferruginous, anterior tibiæ with one side spur; abdomen ferruginous, basal plates, and the first, and more or less of second segments black. Length .45 inch.

Hab.—Nevada, (Morrison). Closely allied to *nevadensis*.

Lyda nigripes.—♂.—Black, shining; head strongly punctured; line on mandibles yellow; antennæ entirely black, about thirty-six-jointed, third joint nearly three times the length of fourth; thorax feebly punctured; wings dusky, with a subviolaceous reflection, second branchial cell without cross-nervure; four anterior tibiæ and tarsi and spurs on posterior tibiæ ferruginous, anterior tibiæ with one side spur; abdomen ferruginous, basal plates, and first and second segments black. Length .50 inch.

Hab.—Nevada, (Morrison). Closely allied to *montivaga*.

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Lyda rufiventris.—♂.—Black, shining; sides of face, clypeus, labrum, posterior orbits, dot at summit of eyes, mandibles except tips, palpi and scape beneath, yellow; antennæ slender, about thirty-six-jointed, third joint nearly three times longer than fourth, basal joints of flagellum fulvous; a pale dot beneath tegulæ; wings fusco-hyaline, nervures black, second branchial cell with rudiment of cross-nervure; legs dull honey-yellow, coxæ, trochanters and femora beneath black; anterior tibiæ each with one side spur; abdomen ferruginous, extreme base black. Length .40 inch.

♂ var.—Wings hyaline, basal joints of flagellum and femora black.

Hab.—Nevada, (Morrison).

Lyda bucephala.—♂.—Black, shining; head unusually large, broad, strongly punctured; clypeus, face as high up as lower ocellus, anterior orbits, cheeks entirely, extending back to occiput, mandibles except tips, palpi, basal joint of antennæ, pleura entirely except narrow space beneath base of wings, sides of prothorax and beneath, two dots on anterior lobe of mesothorax posteriorly, four anterior coxæ beneath, and all the trochanters and femora beneath, luteous; antennæ about twenty-eight-jointed, slender, third joint more than twice the length of the fourth, flagellum pale ferruginous, becoming dusky at tip; wings hyaline, faintly dusky on apical half, nervures and stigma fuscous, second branchial cell without cross-line; anterior tibiæ with one side spur; tibiæ, tarsi and abdomen, except basal plates, fulvous. Length .35 inch.

Hab.—California, (H. Edwards).

Lyda terminalis.—♀.—Black, shining; dot at summit of eyes, spot on each side of vertex above ocelli and short line on sides of occiput, dull whitish; antennæ slender, about thirty-six-jointed, third joint nearly three times longer than fourth; wings hyaline, dusky at tips, nervures black, second branchial cell without cross-nervure; anterior tibiæ each with one side spur; the fourth and following segments of abdomen ferruginous. Length .70 inch.

Hab.—Nevada, (Morrison).

Lyda brunniceps.—♀.—Black, shining; head, two ill defined spots on mesothorax posteriorly, scutellum and four anterior tibiæ, yellowish-brown; spot covering ocelli, spot at insertion of each antenna, tips of mandibles and the palpi black; antennæ slender, second joint fulvous, third more than twice longer than fourth, (joints beyond the twelfth wanting); wings dusky, paler at base, nervures black, second branchial cell without cross-nervure; anterior tibiæ with one side spur; lateral edges of abdomen very narrowly pale, more or less interrupted. Length .50 inch.

Hab.—White Mountains, N. H., (Morrison).

Lyda marginiventris.—♀.—Black, shining; two nearly confluent spots above antennæ, spot at summit of eyes, continued by a narrow line to transverse line on occiput, two ovate spots on vertex behind ocelli, broad line on cheeks confluent with the line on occiput, clypeus, base of mandibles, upper lateral margins of the prothorax, spot on each side beneath, a sublunate spot on mesothorax in front, the scutellum, and spot above posterior coxæ, whitish; antennæ short, slender, about twenty-eight-jointed, third joint nearly three times the length of the fourth; wings hyaline, nervures black, second branchial

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cell without cross-nervure; spot on all the coxæ, anterior knees and their tibiæ before pale, anterior tibiæ with one side spur; narrow lateral margin of abdomen above, and apical margin of ventral segments more or less, whitish. Length .55 inch.

Hab.—New York. This is allied to *maculiventris* Harris.

Lyda albomarginata.—♀.—Black; head sparsely and coarsely punctured; two dots above insertion of antennæ, square spot on each side of face, connected with a spot at summit of eyes, which is again connected by a narrow line with occiput, two oblong spots back of ocelli, also connected with line on occiput, cheeks, clypeus, scape beneath, lateral and posterior margins of prothorax, sublunate spot on anterior middle of mesothorax, spot on each side behind, most of pleura, spot over middle coxæ, most of coxæ and femora beneath, lateral margin of dorsal abdominal segments, and band on apical margin of ventral segments, all white; antennæ very slender, about twenty-nine-jointed, brown beneath, third joint about three times the length of the fourth; thorax sparsely punctured, shining; wings hyaline, nervures and stigma black, second branchial cell without cross-nervure; tibiæ and tarsi fulvous, anterior tibiæ with one side spur; abdomen shining, apical middle of segments above narrowly and obscurely pale. Length .45 inch.

Hab.—Colorado, (Morrison). Closely allied to *marginiventris*, differing chiefly in the color of the legs.

Lyda nigrita.—♂.—Entirely black, shining; head strongly, not closely, punctured; antennæ slender, about thirty-six-jointed, third joint about twice the length of fourth; wings clear or slightly dusky, with an æneous reflection, nervures black, second branchial cell without cross-nervure, third submarginal cell rather shorter than the second; anterior tibiæ sometimes brown in front, with one side spur, all the spurs pale. Length .50 inch.

Hab.—Nevada, (Morrison).

Lyda atrata.—♂.—Black, shining; head opaque, coarsely and confluently punctured; mandibles ferruginous; antennæ about twenty-eight-jointed, third joint about twice the length of fourth, flagellum brown at base; wings varied or spotted with pale fuscous, especially towards apex, second branchial cell without cross-nervure, third submarginal not longer than second; tibiæ and tarsi fulvous, anterior tibiæ with one side spur. Length .36 inch.

Hab.—Nevada, (Morrison).

Lyda ochreipes.—♀.—Black; middle of clypeus, its anterior margin, a slender line leading from summit of eyes to occiput, base of mandibles, palpi, tegulæ, spot before, scutellum, spot on postscutellum, legs and middle of venter, pale lemon-yellow; antennæ slender, about nineteen-jointed, third joint more than twice the length of the fourth; wings slightly stained with yellowish, nervures blackish, second branchial cell with incomplete cross-nervure, third submarginal cell larger, and a little longer than the second; coxæ except tips black, tarsi pale fulvous, anterior tibiæ without side spur; abdomen piceous. Length .45 inch.

Hab.—White Mountains, N. H., (Morrison). Allied to *canadensis* Norton.

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Lyda pullata.—♀.—Dull black; clypeus, base of mandibles, arcuate line on each side of vertex behind eyes, an elongate spot on each side within, palpi, upper and lower lateral margin of prothorax, transverse triangular mark at tip of anterior lobe of mesothorax, scutellum, spot behind, tegulæ, dot on sides of pleura posteriorly, tips of coxæ, trochanters, femora and tibiæ, and apical margin of ventral segments, white; antennæ about twenty-jointed, brown, basal joint black, third joint thrice longer than the fourth; wings hyaline, nervures and stigma fuscous, second branchial cell with incomplete cross-line; tarsi ferruginous, anterior tibiæ without side spur. Length .35 inch.

Hab.—Missouri, (C. V. Riley).

Lyda perplexa.—♀.—Black; head coarsely punctured, the impressed lines on vertex very deep; clypeus, a slender slightly curved line extending from summit of eyes to occiput, mandibles except tips, palpi, posterior angles of prothorax, spot beneath, sublunate mark on middle of mesothorax anteriorly, scutellum, spot on postscutellum, tegulæ, legs entirely except base of coxæ, and most of venter, pale yellow; antennæ short, black, about twenty-jointed, third joint three times the length of fourth; wings hyaline, nervures fuscous, second branchial cell with incomplete cross-nervure, third submarginal cell much longer than second; anterior tibiæ without side spur; abdomen tinged with violaceous, an oblong orange-yellow patch occupying middle of segments 2—4; base and apex of venter black. Length .35 inch.

Hab.—Massachusetts, (Ridings). Closely allied to *canadensis*, and looks very much like *Burquei* Prov., but differs in the form of the antennæ.

Lyda fascipennis.—♀.—Dull black; head coarsely punctured, mandibles yellow, shading to fulvous at tip; spot on sides of face, spot on apical middle of clypeus, dot at summit of eyes, broad line on cheeks extending on to occiput and two spots behind ocelli, ferruginous; palpi pale; antennæ about twenty-six-jointed, pale yellow, scape and apex of flagellum more or less dusky, third joint more than twice the length of fourth; spot on sides of mesothorax, one on scutellum and one on pectus in front of middle coxæ, ferruginous; mesothorax closely punctured, with anterior lobe and ferruginous space on side lobes smooth; wings yellowish-hyaline, nervures yellow, stigma except tip blackish, a fuscous band beneath stigma, slightly curved towards apex and extending across the wing; second branchial cell with a mere rudiment of a cross-nervure, third submarginal cell scarcely longer than second; legs black, apex of femora, tibiæ and tarsi yellow, anterior tibiæ without side spur; abdomen violaceous-black, segments 2—5 except spot or stain on middle, and sides of segments one and six, yellowish-ferruginous. Length .60 inch.

Hab.—White Mountains, N. H., (Morrison).

Lyda semidea.—♀.—Yellowish-brown or dull honey-yellow; head around base of antennæ and on vertex about ocelli varied with blackish-brown; broad line on cheeks and two spots behind ocelli, yellow; antennæ long, slender, twenty-six to thirty-jointed, pale yellow, base fulvous, apex and scape above blackish, third joint twice the length of the fourth; anterior margin of mesothorax, and pectus, more or less black; a pale yellowish spot on sides of mesothorax posteriorly; wings hyaline, nervures fuscous; narrow

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apical margin and narrow line extending from base of stigma along the transverse nervures across the wing pale fuscous; second branchial cell without cross-nervure or with rudiment of one; third submarginal cell longer than the second; one specimen has only three submarginal cells, the dividing nervure between the second and third wanting; coxæ and femora more or less black, anterior tibiæ without side spur; abdomen generally more or less dusky at tip. Length .40 inch.

Hab.—Mt. Washington, N. H., (Dimmock).

Lyda nigropectus.—♀.—Black; spot on sides of face, anterior margin of clypeus, spot in middle, spot at summit of eyes, line on cheeks continued on to occiput, two ovate spots behind ocelli, base of mandibles, narrow posterior margin of prothorax, sublunate spot on middle of mesothorax anteriorly, large spot on each side posteriorly, two dots on scutellum, small spot beneath anterior wing and the tegulæ, yellowish-white; mandibles fulvous, extreme tips black; antennæ slender, about twenty-six-jointed, fulvous, spots on scape and apex of flagellum blackish, third joint twice the length of fourth; wings as in *semidea;* legs fulvous, coxæ and femora except tips black, anterior tibiæ without side spur; abdomen honey-yellow, basal plates black; venter more or less varied with blackish. Length .53 inch.

Hab.—Nevada, (Morrison).

Lyda melliventris.—♂.—Black, shining; head large; spot at sides of face, spot between antennæ, straight line leading from summit of eyes to occiput, spot on lower part of cheeks, clypeus, mandibles except tips, palpi, scape beneath, tegulæ, dot before, sometimes a spot on middle of mesothorax anteriorly, spot on scutellum, sometimes one on postscutellum, and the legs, pale lemon-yellow; antennæ about twenty-two-jointed, brown, the three basal joints above black, third joint a little longer than the fourth; wings hyaline, faintly dusky, subiridescent, nervures brown, second branchial cell with incomplete cross-nervure, third submarginal cell large, about equal in length with the second; coxæ except tips and spot on four anterior femora at base above black, anterior tibiæ without side spur; abdomen honey-yellow, basal plates black. Length .30 inch.

Hab.—Nevada, (Morrison).

Lyda rufocincta.—♂.—Black, shining; face, clypeus, anterior orbits, line on posterior orbits, mandibles except tips, palpi, scape beneath, tegulæ, spot on scutellums, angular line beneath anterior wings, and the legs, pale yellow; face concave, the margins prominent, subcarinate, with a longitudinal ridge on middle of clypeus; an angular yellow carina between ocelli; antennæ about twenty-six-jointed, third joint half again as long as the fourth; wings faintly dusky, iridescent, nervures black, second branchial cell with incomplete cross-nervure, third submarginal cell longer than the second; coxæ except tips black, anterior tibiæ without side spur; abdomen polished, third and fourth segments honey-yellow. Length .35 inch.

Hab.—Colorado, (Morrison).

Lyda Rileyi.—♀.—Black, shining; cheeks, narrow anterior orbits, dilated at summit of eyes, and continued back to line on posterior margin of head, a rounded spot on sides of face confluent with orbital line, two uneven spots, divided by the suture, behind ocelli, clypeus, a square spot on middle of vertex

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below ocelli, enclosing a black impressed dot, and continued narrowly to base of clypeus, mandibles except tips, palpi, upper posterior margin of prothorax, lateral margin beneath, posterior half of anterior lobe of mesothorax, scutellum, a spot on each side anteriorly, spot on postscutellum, broad oblique line on pleura, tegulæ, coxæ except base above and beneath, remainder of the legs, narrow lateral margin of abdomen above, its sides broadly beneath, and apical margin of ventral segments, all white; wings hyaline, nervures and stigma castaneous, second branchial cell with incomplete nervure; antennæ about twenty-jointed, third joint a little longer than the fourth; tarsi dusky, anterior tibiæ without side spur. Length .30 inch.

Hab.—Missouri, (C. V. Riley).

CEPHUS Latr.

Cephus rufiventris.—♀.—Shining, black, impunctured; a pale spot at base of mandibles; antennæ as long as the abdomen, twenty-four-jointed; wings hyaline, iridescent, dusky at tips, nervures and stigma fuscous; legs black, anterior tibiæ pale in front; abdomen entirely ferruginous, sheaths of ovipositor black. Length .35 inch.

Hab.—California, (H. Edwards).

Cephus abdominalis.—♀.—Black; sides of face, clypeus, spot at summit of eyes, base of mandibles, line on cheeks, triangular spot on posterior sides of prothorax above, spot beneath wings, scutellum, knees, tibiæ and tarsi, and the abdomen above (except the fourth segment entirely and basal margin of sixth and seventh), and sides of ventral segments more or less, all yellow; antennæ twenty-three to twenty-five-jointed, slightly thickened beyond the fourth joint, joints 5—13 yellowish; wings smoky-hyaline, iridescent, costa and stigma honey-yellow, second submarginal cell receives the first recurrent nervure near the base, the second recurrent coincides with the second transverso-cubital nervure, lanceolate cell with straight cross-line; legs slender, apical half of posterior tibiæ fuscous; abdomen nearly twice the length of head and thorax, compressed, shining. Length .50 inch.

Hab.—Nevada, (Morrison).

Cephus bifasciatus.—♀.—Black, shining; spot on sides of face, spot on base of mandibles, dot at summit of eyes, and band at apex of third and fifth segments of abdomen above, white; antennæ twenty-three-jointed, slender at base, thickened beyond joint five, joints 6—9 more or less yellowish; wings yellowish-hyaline, nervures fuscous, costa and stigma honey-yellow, second submarginal receives the first recurrent nervure at base, the third submarginal receives the second recurrent nervure near the base, lanceolate cell with straight cross-line; four anterior tibiæ pale at base, remainder of tibiæ, the posterior pair and all the tarsi fuscous; abdomen rather longer than head and thorax, subcompressed, shining. Length .45 inch.

Hab.—Colorado, (Morrison).

Cephus fasciatus.—♀.—Black, shining; spot on sides of face, dot within summit of eyes, two spots on clypeus, dot on mandibles, spot on cheeks, dot on scutellum, spot beneath wings, line on four anterior tibiæ before, basal third of posterior tibiæ, band at apex of abdominal segments two, three, five and six, broad on three and five, very narrow on six, and large spot on apical

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segment above, all white; antennæ slender at base, thickened beyond joint five; wings smoky-hyaline, second submarginal cell receives the first recurrent nervure at base, the second recurrent coinciding with the second transverso-cubital nervure, lanceolate cell with straight cross-line; remainder of tibiæ, and all the tarsi fuscous; abdomen longer than head and thorax, shining. Length .45 inch.

Hab.—Colorado, (Morrison).

XYELA Dalm.

Xyela major.—♀.—Large, brown-ferruginous, opaque; head, just above antennæ, with a large purplish-brown spot, tinged at sides with green, all beneath antennæ yellowish-ferruginous; antennæ ferruginous, about twelve-jointed, the fourth and following joints very short and yellow; disk of mesothorax, pectus, and metathorax more or less brown; narrow posterior margins of prothorax and of scutellum, and the tegulæ, yellowish; wings yellowish, with a golden gloss, nervures ferruginous, margined with pale fuscous, the third marginal cell receiving two recurrent nervures, the second and third submarginals each with one recurrent nervure, under wings with three inner cells, two submarginal and one beneath; legs yellow-ferruginous, varied with brown, base of tibiæ and posterior tarsi yellow; abdomen shining, blackish-brown above, with a greenish iridescence in certain lights, basal plates, first segment, narrow apical margin of all the segments and small spot on each side, most of the two apical segments, and venter ferruginous. Length to tip of oviduct, .47 inch, expanse of wings 1.25 inch.

♂.—More slender, ferruginous; middle of face, all beneath antennæ, cheeks beneath, scape, spot on pleura, tegulæ, tips of coxæ, all the trochanters, four anterior femora, base and extreme tips of posterior pair, basal half of four anterior tibiæ, basal third of posterior pair, posterior tarsi, and lateral margin of abdomen, yellow; otherwise as in ♀. Length .45 inch.

Hab.—Texas, (Belfrage).

Fam. UROCERIDÆ.

XIPHYDRIA Latr.

Xiphydria rufiventris.—♀.—Black; head polished behind ocelli, a short longitudinal pale spot on either side behind ocelli; face rugulose; mandibles pale brown; thorax rugulose, the three longitudinal lines on mesothorax deeply impressed; tegulæ pale; wings hyaline, iridescent, second recurrent nervure coinciding with the second transverso-cubital nervure, which also coincides with the marginal cross-line; trochanters, base of tibiæ and tarsi pale, remainder of tibiæ fuscous; abdomen ferruginous, shining, basal plates fuscous. Length .40 inch.

Hab.—New York, (Comstock). Allied to *abdominalis* Say.

UROCERUS Geoffr.

Urocerus cæruleus.—♀.—Steel-blue; head and thorax clothed with a fine black pubescence, coarsely punctured, sparsely so on cheeks, and posterior part of head; pleura finely punctured; antennæ black, twenty-one-jointed; wings pale smoky, nervures fuscous, second branchial cell with incomplete cross-nervure; legs steel-blue, tarsi sometimes brown towards tips;

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abdomen minutely sculptured, shining, anal horn or cornus long, broad at base and gradually narrowed to tip, the sides irregularly serrate, the upper surface depressed, smooth and impunctured; ovipositor about as long as abdomen. Length to tip of cornus, .95 inch.

Hab.—Vancouver's Island, (H. Edwards). Closely allied to *cyaneus* Fab., but in that species the cornus is shorter, broader at base and more triangular in form, and the legs of a different color.

Urocerus Behrensii.—♀.—Black, opaque, with a slight tinge of blue; wings hyaline, a band beneath base of stigma, bent towards base of wing, and apical margin, fuscous; tarsi more or less brown-ferruginous; abdomen ferruginous, basal plates, first segment and lateral margin of second and following segments, black; cornus short, triangular, acute at tip and serrate at sides, shaped somewhat as in *Edwardsii* Brullé. Length 1.25 inch.

Hab.—California, (Behrens).

Urocerus fulvus.—♂.—Fulvous, thorax darker; cheeks pale yellow; tips of mandibles and line behind ocelli fuscous; wings yellowish-hyaline, nervures fulvous; cornus short, acutely triangular, sides serrated. Length 1.05 inch.

Hab.—Colorado, Washington Territory, (Morrison, H. Edwards).

Urocerus Morrisoni.—♀.—Form of *caudatus* Cress.; black, head and thorax opaque, coarsely sculptured; a pale spot on smooth space on cheeks behind summit of eyes, antennæ beyond sixth or seventh joint, tibiæ, tarsi and abdomen, except basal plates and first segment, ferruginous; wings fuliginous, darker towards base; knees and sometimes the basal third of the tibiæ pale; cornus as in *caudatus;* ovipositor longer than the body, black. Length .75—1.15 inch; with ovipositor 1.20—2.10 inch.

♀ var.—Antennæ, legs and abdomen entirely ferruginous. Length 1.10—1.20 inch.

♂.—Colored like ♀, except that the antennæ and legs are black, knees and tips of tarsi more or less ferruginous; wings paler; abdomen sometimes obfuscated at tip. Length .50—.75 inch.

Hab.—Colorado, Utah, Washington Territory, (Morrison). This may prove to be a variety of *caudatus* Cress.

The following descriptions, the originals of which are scattered through different publications, and not included in Norton's descriptive Catalogue, are added here to facilitate reference.

Cimbex MacLeayi Leach, Zool. Misc. No. 2; St. Farg. Mon. Tenth., 30.—"♂.—Antennæ luteous, four basal joints subfuscous; head and thorax pale violaceous-black; abdomen luteous, disk and base violaceous-black, incisures luteous; legs violaceous-black, tarsi luteous; wings hyaline, apex and base of second radial cell fuscous."

Hab.—San Domingo.

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Cimbex Klugii Leach, Zool. Misc. No. 6; St. Farg. Mon. Tenth., 32.—"♀.—Antennæ yellow; head and thorax black; abdomen violaceous-black, with five yellow bands above, the first two and the last interrupted; legs violaceous-black, tarsi yellow; wings hyaline, apex and second radial cell anteriorly subfuscous."

Hab.—San Domingo.

PTENOS Norton.

Ptilia, Sec. 2, Norton, Trans. Am. Ent. Soc. ii, p. 367, 1869.

"Wings with one marginal, appendiculate cell and four submarginal cells, the second receiving two recurrent nervures; the second cell is long and the third is wider than high; lanceolate cell petiolate. Under wing not appendiculate, and with two inner cells. Antennæ three-jointed, slender, furcate in males, ciliate; maxillary palpi four-jointed. Legs as in *Ptilia;* tarsi without processes beneath, not dilated, first joint longest; tibiæ with two apical spurs, no side spurs."

Ptenos niger Norton, Trans. Am. Ent. Soc. iv, 77.—"♂.—Length 0.20; br. wings 0.46 inch.—Color black; antennæ not as long as thorax, slender; third joint furcate, with long coarse ciliæ, bent at tip, piceous; a piceous spot on each side of thorax, the edges of basal plates, of first segment, and of each segment of venter, piceous; palpi pale; nasus and labrum fringed with white hair; abdomen thick; legs blackish-piceous, with the apex of femora and most part of tibiæ pale, their base piceous; wings hyaline, basal half violaceous, subobscure, stigma piceous."

Hab.—Texas. (Coll. Am. Ent. Soc.)

Ptenos nigropectus Norton, Trans. Am. Ent. Soc. iv, 77.—"♂.—Length 0.22; br. wings 0.46 inch.—Head, most part of thorax and apex of tergum black; tegulæ, collar, anterior angle, sutures of metathorax at sides, and most of abdomen yellow-red; the very broad membranous notch waxen whitish; the four anterior legs yellowish below the tips of femora, black above; hinder legs black, becoming piceous below the femora; stigma and costal space yellowish, basal half of wings smoky-yellow, apical half clearer, nervures blackish; antennæ furcate, ciliate, slender, shorter than thorax, ciliæ black."

Hab.—Texas. (Coll. Am. Ent. Soc.)

Hylotoma consobrina Norton, Trans. Am. Ent. Soc. iv, 78.—"♀.—Length 0.40; br. wings 0.80 inch.—Antennæ clavate, black, with the two basal joints pale; head, thorax and the four and a half basal segments of abdomen brown-yellow; mouth whitish; the three and a half apical segments of tergum black; legs yellow, the middle of all the femora, the apical two-thirds of all the tibiæ, and all the tarsi black, except the basal two-thirds of the first, which is pale; spines yellow; less of black on the anterior femora; wings blackish at base and tip beyond the stigma; a broad yellow band across the middle; nervures the color of bands; body slender; ridge between antennæ flattened so as to form a triangular enclosed space."

Hab.—Mexico. (Coll. Am. Ent. Soc.)

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Pachylota varicolor Norton, Trans. Am. Ent. Soc. iv, 79.—"♀.—Length 0.48; br. wings 0.94 inch.—Color shining black, with the abdomen, except at base, yellow-red; a blackish band, broken in middle, across first and second segments; the anterior angle, basal plates and base of venter, white; wings violaceous-brown, their basal third clear. Head not as wide as thorax, closely ciliate with greenish cinereous hairs; antennæ short, not as long as to scutel, clavate, densely ciliate with cinereous hair, seen from the side a slight process near the base of third joint beneath; all the palpi four-jointed, the second and third maxillary globose; ocelli nearly in a straight line, or an obtusely flattened triangle. Head and body polished, pleura smooth, with a patch of grey hair in middle. Abdomen rather long, rounded. Legs stout; tibiæ simple, with end spurs; tarsi with processes beneath, first joint nearly as long as all the rest, joints 2—4 short and stout; claws strongly cleft. Upper wings long, marginal appendix large, first submarginal cell prolonged on the costa; second receiving the first recurrent nervure on the first cross-nervure, and the second near its middle; third cell twice as long on the marginal vein, its outer cross-nervure bent in the middle nearly to a right angle with a short incomplete nervure arising from its outer angle; lanceolate cell petiolate, its petiole long; under wing not appendiculate, with two inner cells, the upper cell bent outward, with an incomplete nerve as in the upper wing; a small lanceolate cell at base of wing."

Hab.—Mexico. (Coll. Am. Ent. Soc.)

Cladius æqualis Norton, Trans. Am. Ent. Soc. iv, 78.—"♂.—Length 0.22; br. wings 0.45 inch.—Antennæ long and slender (about 0.18 inch), quite pilose, third joint a little shorter than fourth, a little swelled at base beneath, apex of joints 3—6 swelled; final joint of maxillary palpi ovate, much larger and rather longer than the preceding; face on each side of ocelli channeled; a ridge, channeled through the centre, passing down between antennæ; claws with a strong inner tooth near middle. The whole body shining black, palpi and legs below knees whitish, anterior legs tinged with rufous, hinder tibiæ blackish at tip; wings hyaline, a smoky cloud passes across upper wings from base of stigma to tip of inner apical cell and from thence along lanceolate cell to base of wing; outer cross-nervure of lower inner under wing cell coincides with that above it."

Hab.—Farmington, Conn.

Euura salicicola E. A. Smith, American Entomologist, i, 41.—"♀.—Blackish; labrum and mandibles darker at tips, the former rounded; clypeus emarginate; antennæ fulvous, the two basal and upper portion of next three joints darker and inclining to fulvous; thorax, with tegulæ and edges of collar, fuliginous; abdomen with the ovipositor fulvous, sheaths dusky; cerci as long as the last tarsal joint, omitting the claws; coxæ, trochanters and basal half of femora testaceous, the remaining portions much paler; wings hyaline, nervures fulvous, stigma basally fulvous, terminally inclining more to umber, costa same, third submarginal cell nearly square, the nervures separating the three whitish. Average length 7 mm.

"♂.—Smaller; head with eyes larger; abdomen nearly black; posterior legs with the femora testaceous throughout, tarsi darker than in ♀; wings with veins more deeply marked, as also the stigma. Average length 6 mm."

Hab.—Peoria, Illinois, on *Salix alba*. Described from twenty

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bred specimens. The antennæ and anterior wing are figured, and the larva and pupa described, as well as all stages of the parasite, *Eurytoma studiosa* Say.

Dictynna cordoviensis Norton, Trans. Am. Ent. Soc. iv, 81.—"♂.—Length 0.18; br. wings 0.42 inch.—Antennæ rather longer than head and thorax, ten-articulate, slightly clubbed, as in *Athalia*, joints enlarging to apex, quite bent, as in *Sciapteryx*, final joint obtuse. Eyes quite protuberant, approaching below. Head narrow, concave behind, no distinct marginal edge on border of occiput, which round towards neck from eyes; a deep channel on each side of ocelli and a basin below the lower ocellus; clypeus depressed, narrow, very shallow, margin straight; labrum rather pointed; mandibles with no inner teeth. Abdomen as in *Hylotoma*, short, flattened, obtusely rounded at apex. Spurs of tibiæ short; claws simple. Wings broad; one marginal, appendiculate cell; first submarginal long, ovate, its nervure dividing from second broken, third longer and wider than second; first recurrent nervure received near base of second cell; lanceolate cell petiolate, very small, placed opposite the inner apical nervure; under wing with a large appendiculate cell, one inner cell beneath the marginal, no lanceolate cell, outer cells all open. Head and antennæ black; metathorax, pectus and abdomen above, mostly blackish; labrum, mesothorax, scutellum and pleura, yellow-brown; middle of each segment of tergum and most of venter, indistinctly brown; coxæ, femora, anterior tibiæ and tarsi, yellow-brown; remainder of legs blackish; wings smoky, subhyaline, a minute black dot in middle of branchial and second submarginal cells."

Hab.—Cordova, Mexico.

Dictynna polita Norton, Trans. Am. Ent. Soc. iv, 81.—"♂.—Length 0.18; br. wings 0.42 inch.—More slender than *D. cordoviensis;* form of head and sculpture the same; (antennæ wanting); head and body shining black; legs yellow-brown, tips of femora and tarsi blackish; wings subviolaceous, neuration as above."

Hab.—Cordova, Mexico.

Emphytus pallipes Provancher, Nat. Can. x, 66.—"♀.—Length .22 inch.—Black; head transverse, angular, as broad as the thorax, punctured, with a furrow on each side behind the ocelli; antennæ moderate; palpi, tegulæ, legs with the trochanters and tips of the coxæ, dull yellowish-white; posterior femora except base, tips of their tibiæ with their tarsi, black or deep brown; abdomen entirely black, short and stout; wings hyaline, nervures brown, the costa and stigma deep brown."

Hab.—Canada. (Coll. Provancher.)

Emphytus Bollii Norton, Trans. Am. Ent. Soc. iv, 80.—"♀.—Length 0.56 inch.—Allied to *tarsatus*. Color shining black; antennæ black, with the three apical joints and a dot on the tip of fourth above white; an obscure line beneath; tip of apical joint black; tegulæ white; scutel black; legs white, with their coxæ, the four anterior femora, apical two-thirds of the hinder femora, a spot at tip of two anterior tibiæ and the tips of the four hinder tibiæ black; claws and tips of claw-joints black; wings smoky-hyaline; a white spot at base of stigma. Antennæ more slender than in *tarsatus* and the head not so wide."

Hab.—Texas.

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Dolerus distinctus Norton, Trans. Am. Ent. Soc. iv, 82.—"♀.—Length 0.28; br. wings 0.56 inch.—Rather short and stout; head and thorax coriaceous, with coarse punctures, the whole of pleura coarsely pitted, the pits of equal size on the pro- and metapleura, as in middle; about half as large as in *similis;* body with quite sparse whitish hair. Color black; tegulæ, prothorax, a spot in middle of anterior lobe of mesothorax, a band across side lobes from scutellum to wings, a stripe across the metapleura from anterior wings, and a band across the apical half of segments 2—5 of tergum, yellow-red; legs apparently all of one color; wings blackish-hyaline."

Hab.—San Francisco, California.

Dolerus cocciniifera Norton, Trans. Am. Ent. Soc. iv, 82.—"♀.—Length 0.50; br. wings 0.95 inch.—Head back of ocelli polished; face about and beneath ocelli very coarsely punctured; labrum subpolished; nasus incurved; mandibles punctured above; remainder of body polished, except the pleura, which is coarsely pitted; inner spur of anterior tibiæ bifid; claws with a strong inner tooth near middle. Antennæ, head, a V on anterior lobe of mesothorax, scutel, metathorax, basal plates, pleura, pectus, terebra sheath and legs, black; mesothorax, anterior angle, neck and abdomen coccineous; spurs yellowish; wings violaceous, obscure, nervures black, a clear spot at extreme base of wings, lines leading to the bullæ clear; first submarginal cell nearly circular and much contracted at the cross-nervure."

Hab.—Near San Francisco, California. This fine species seems to be a variety of *tejonensis*, from which it differs in having the clypeus notched and the pleura more coarsely pitted, and the scutel, metathorax and pleura black."

Hemichroa albido-variata Norton, Trans. Am. Ent. Soc. iv, 81.—"♀.—Length 0.35; br. wings 0.70 inch.—Color black, the edge of nasus, labrum, tegulæ, collar, anterior angle, a stripe on each side of anterior lobe of thorax, and a band across four basal segments of tergum, wax-white; edges of the three apical segments waxen; legs whitish, a black band on the hinder femora and the hinder tarsi blackish above. Antennæ moderate, not slender, filiform, joints of nearly equal length and size. The two basal joints very short and deeply set, third rather the stoutest; lower ocellus in a deep basin, nasus deeply notched; lower half of face and the pleura with cinereous hairs; remainder of body shining; the head nearly as wide as thorax; body quite thick and stout; the first tarsal joints rather arcuate, with processes beneath. Claws cleft; wings hyaline, faintly smoky, stigma and costal nervure brownish; second submarginal longest, receiving the two recurrent nervures, third of nearly equal width; lanceolate cell contracted; the under wing with two inner cells, lanceolate cell retracted."

Hab.—Texas. (Coll. Am. Ent. Soc.)

Hemichroa fraternalis Norton, Trans. Am. Ent. Soc. iv, 81.—"♂.—Length 0.30; br. wings 0.60 inch.—Shining black, more slender than *albido-variata;* tegulæ and anterior angle piceous; legs pale, with the basal one-third of femora and the coxæ black, hinder legs mostly black; sculpture and wings as in *albido-variata*, of which it is very probably the male."

Hab.—Texas. (Coll. Belfrage.)

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Sclapteryx punctum Provancher, Nat. Can. x, 72.—"♀.—Length .28 inch.—Black; body short and robust; head strongly punctured; epistoma emarginate, black; labrum reddish; antennæ red, stout, the first two joints black above; thorax black; scutellum white; tegulæ, legs, and the abdomen except the tip, red; tips of posterior femora and their tibiæ black, their trochanters, tips of their coxæ and the tarsi, yellow; wings hyaline, slightly obscured with yellow, costa yellow, stigma brown; second submarginal cell much shorter than the third, with an opaque dot towards the middle; lanceolate cell with an oblique cross-line; under wing with two discoidal cells."

Hab.—Canada. (Coll. Provancher.)

Selandria Sumichrasti Norton, Trans. Am. Ent. Soc. iv, 82.—"♀.—Length 0.25; br. wings 0.50 inch.—Rather stout; antennæ moderately swelled in middle, the four apical joints diminishing in size and length, final joint pointed; no sutures at sides of ocelli, a lengthened pit back of each upper ocellus, three little pits back of antennæ; nasus wide, margin subsinuate, a little protuberant in middle; surface shining, covered with whitish hair; inner claw tooth near the tip, long, appearing bifid. Color of head back to neck, pro- and mesothorax, scutel, tegulæ and collar, yellow-red; remainder of body shining black; three little dots back of antennæ, cheek, labrum and palpi, black; legs black, the two or three basal joints of tarsi clear white; wings subobscure, blackish, lower half of stigma brownish; first submarginal cell rather long, second submarginal cross-nervure receiving the recurrent nervure at the intersection of second and third cells, lanceolate cell petiolate, under wing with no inner cells, its marginal cell with a small appendiculate cell at the tip."

Hab.—Cordova, Mexico. Belongs to subgenus *Blennocampa* Hartig.

Selandria fascipennis Norton, Trans. Am. Ent. Soc. iv, 84.—"♀.—Length 0.30—0.35; br. wings 0.68—0.72 inch.—Color yellow-red; antennæ, a spot about ocelli, palpi, and the three apical segments of tergum, black; legs yellow-red, the apical half of all the tibiæ and all the tarsi, except a yellow band on the first joint, black; wings black, very black at base, with a wide yellow band across the middle, including most of stigma, narrowest above. Antennæ, the two basal joints pale, of nearly equal length, the four apical joints decreasing rapidly in size and length; head rather thin, nearly as wide as thorax: ocelli in a small triangle, the lower ocellus in a deep small basin, three little round pits above base of antennæ; hinder coxæ twice as long as those preceding; claws strongly cleft, with a large, blunt inner tooth; wings rather long, first recurrent nervure received near the middle of second submarginal cell, and the second nervure near the base of third; lanceolate cell rather large; under wings with an appendiculate nerve on the marginal cell.

"♂.—The male has the antennæ pale beneath, and the first and second joints partly black; the under wings are without inner cells and have the outer cells closed as in *Strongylogaster mellosus*, ♂.

Hab.—Mexico. (Coll. Am. Ent. Soc.) Belongs to subgenus *Monophadnus* Hartig.

Selandria caryæ Norton, Packard's Guide, p. 224, 1868; Trans. Am. Ent. Soc. iv, 83.—"♀.—Length 0.25; br. wings 0.40 inch.—Antennæ moderately enlarged in middle, first and second joints of equal length, four apical

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joints short, together about as long as the two preceding, the whole quite bristling with coarse hair; head polished, eyes widely separated, a deep irregular fissure back of each upper ocellus, no channels at sides of ocelli, three smooth basins back of base of antennæ, having in the centre of each a minute deep pit; nasus wide, truncate; claws of tarsi apparently bifid. Color shining black; pro- and mesothorax and scutellum rufous, apex of the latter black; nasus and legs white, the tarsi blackish; base of coxæ and a line down the upper side of legs black; upper wings subviolaceous; first submarginal cell rather ovate, longer than wide; lanceolate cell petiolate; under wings with two marginal cells and one submarginal inner cell (all the other species have one discoidal inner cell and no submarginal), all the outer cells closed as in figure 3 (*Trans. Am. Ent. Soc.* i, p. 151), the bounding nervure not touching the margin; the submedial cell is without cross-nervure, but does not reach the margin of wing, and the lanceolate cell is short.

"♂.—Antennæ (one specimen) ten-jointed, apical joint minute; lower half of inner orbits white; anterior legs wholly whitish, also the middle tibiæ; under wings with one marginal and no inner cell, formed as in figure 2 (ibid.) with no cross-nervure in submedial cell."

Hab.—Farmington, Conn. Belongs to subgenus *Monophadnus* Hartig. For mention of variation in neuration, also description and habits of the larva of this species, see Trans. Am. Ent. Soc. iv, p. 83.

Selandria inæquidens Norton, Trans. Am. Ent. Soc. iv, 84.—"♀.—Length 0.25; br. wings 0.50 inch.—Color piceous red, with the head, two stripes on the side lobes of thorax, metathorax and breast black; abdomen piceous, the apex of each segment darkest; a spot on each side of nasus and the labrum pale; tegulæ and edge of collar white; legs the color of body; wings smoky-yellowish. Antennæ black, short, formed as with *halcyon*, the apical joint not decreasing suddenly in length; face below the occiput quite depressed, rugose; nasus with a shallow angular notch; claws deeply cleft; under wing with one inner cell; outer cells open."

Hab.—Texas. (Coll. Am. Ent. Soc.) Belongs to subgenus *Monophadnus* Hartig.

Selandria longipennis Norton, Trans. Am. Ent. Soc. iv, 84.—"♀.—Length 0.26; br. wings 0.68 inch.—Antennæ, except two basal joints, wanting. A suture like pit back of two upper ocelli, no suture at their sides, but strongly channeled; three pits back of antennæ; nasus rather wide, margin truncate; labrum rounded; head and body shining, not highly polished; legs thickly covered with white hairs; inner claw teeth long, just within the tip. Black, palpi black; nasus, labrum, apex of all the femora, basal third of the tibiæ and the basal tarsal joint, clear white; anterior claw joint waxen; wings very long, not very wide, upper pair blackish, semi-obscure, marginal vein bending rapidly up to the costal margin, the whole vein forming almost a half circle; lanceolate cell petiolate; lanceolate cell of under wing long, extending nearly to tip of wing, receiving the cross-nervure near its tip; traces of broken outer nervures at ends of nerves; the neuration of the under wing is quite unlike any other species of Section 1."

Hab.—Near Cordova, Mexico.

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Selandria albicollis Norton, Trans. Am. Ent. Soc. iv, 85.—"♂.—Length 0.30; br. wings 0.60 inch.—Color black, shining; a spot in the middle of labrum, tegulæ, edge of collar, a round dot in the middle of the anterior angle, white; the four hinder legs black above and brownish before; anterior legs whitish-brown, their coxæ and femora above, black; inner claw tooth slender, not prominent; wings hyaline, the costal and basal nervures white; first submarginal cell long oval, basal corners rounded; the outer under wing cells all open, their single inner cell subtriangular, their lanceolate cell retracted."

Hab.—Texas. Belongs to subgenus *Phymatocera* Dahlb.

Selandria coccinata Norton, Trans. Am. Ent. Soc. iv, 85.—"♀.—Length 0.25; br. wings 0.60 inch.—Body stout; antennæ long, stout, joints diminishing equally in length and size; lower ocellus in an oval well defined basin, channels at sides of ocelli curved, each rising in a pit back of each upper ocellus, and ending in a little deep round pit back of each antenna, but separated from pits of antennæ; the bottom of these pits flat, with a central prominence; nasus broadly truncate at margin; surface of head dull, rather coriaceous, of body shining, not polished, nor punctured; inner claw tooth stout, nearly as large as outer. Head black; basal joint of antennæ, nasus, labrum and palpi, white; thorax and abdomen bright coccineous, with a round spot on each side of scutel, sutures of metathorax, a double spot on pectus, and ovipositor sheath, black; under a lens the red color on the thorax is seen to color the prominences and fill the sutures, while the spaces between are waxen; the black spots are well defined; legs white, the intermediate tarsi and hinder tibiæ and tarsi blackish; wings slightly clouded, nervures black; all the angles of first submarginal cell rounded; a dark cloud around the lower shoulder of lanceolate cell, which is without cross-nervure; under wings with two inner cells, their lanceolate cell long and receiving the cross-nervure within the tip as in *flavipes*. Var. ♀.—First joint of antennæ black; all the femora with a wide black band."

Hab.—Near Cordova, Mexico. Belongs to subgenus *Selandria* Hartig.

Macrophya contaminator Provancher, Nat. Can. x, 105.—"♀.—Length .40 inch.—Deep black, shining; margins of the epistoma and labrum, spot at the tip of anterior femora, a line on their tibiæ before, and an elongate spot at the base of posterior coxæ, white; the rest entirely black; antennæ moderate, thickened, scarcely contracted or narrowed medially; epistoma scarcely emarginate, labrum truncate anteriorly, black with the sides and anterior margin white; tegulæ black; wings hyaline, obscured beyond the middle, the second submarginal cell with an opaque dot towards the middle, lanceolate cell closed before the middle; spurs of anterior tibiæ long, the exterior one strongly bifid."

Hab.—Canada. (Coll. Provancher).

Strongylogaster impressatus Provancher, Nat. Can. x, 170.—"♀.—Length .40 inch.—Black; tegulæ, anterior angles, legs, and middle of abdomen, reddish-yellow; head entirely black, finely punctured posteriorly and strongly impressed behind the ocelli; antennæ rather long, subdentate beneath, joints three and four subequal; coxæ black; abdomen black, disk of segments 2—4, with the summit of one, reddish-yellow, with a corresponding spot of same

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color on venter; wings hyaline, very slightly obscure, nervures brown, costa yellowish, stigma black, yellowish inferiorly; lanceolate cell without cross-nervure; under wing with two middle cells."

Hab.—Canada. (Coll. Provancher).

Poecilostoma albosecta Provancher, (*Strongylogaster*), Nat. Can. x, 168.—"♀.—Length .32 inch. Testaceous; head, antennæ and metathorax in part, black; antennæ short, third joint almost double the length of the fourth; clypeus emarginate, margined with white; labrum rounded, and with the palpi, pale: a spot on mesothorax anteriorly and the metathorax in part, black; legs dull yellowish, the trochanters and tips of coxæ, white; abdomen depressed, dull testaceous, each segment with a white margin at tip; wings hyaline, slightly obscure, nervures brown, pale at base, costa and stigma yellowish, the latter with a pale streak from base nearly to tip; lanceolate cell with an oblique cross-nervure; under wing with one middle cell."

Hab.—Canada. (Coll. Am. Ent. Soc.)

Tenthredo pallicoxa Provancher, Nat. Can. x, 201.—♀.—Black; clypeus, labrum, mandibles except tips, lower half of cheeks, palpi, posterior angles of prothorax, the lower margin narrowly, tegulæ, narrow line on sides of pleura, spot above posterior coxæ, sides of basal plates, most of coxæ, trochanters, four anterior legs except line above, base of posterior femora within and line beneath, yellowish-white; antennæ slender, longer than head and thorax; wings hyaline, nervures and stigma black; abdomen stout, ferruginous, shining, basal segment and sometimes the disk of the two following, black. Length .44—.50 inch.

Hab.—Canada. (Coll. Am. Ent. Soc.)

Tenthredo cogitans Provancher, (Allantus), Nat. Can. x, 163.—♀.—Black, opaque; dot at summit of eyes within, sometimes obscure, spot between antennæ, line beneath eyes, clypeus, labrum, mandibles except tips, upper posterior angles of prothorax, scutellum, spot above posterior coxæ, and spot at sides of basal plates, white or yellowish-white; most of palpi, scape beneath, tegulæ, anterior femora except base, intermediate pair at tip within, four anterior tibiæ, posterior pair except tips, and more or less of segments 2—4 of abdomen, ferruginous; tarsi mostly yellowish; clypeus deeply notched, labrum broad, rounded; antennæ as long as head and thorax, slightly thickened medially, slender and shading into ferruginous at tips, third joint a little longer than the fourth; wings slightly smoky, nervures and stigma black, the former pale at base. Length .40 inch.

Hab.—Canada. (Coll. Am. Ent. Soc.)

Tenthredo lineata Provancher, Nat. Can. x, 198.—♀.—Black; dot at summit of eyes, clypeus, labrum, line beneath eyes connected with spot on lower part of cheeks, mandibles except tips, posterior angles of prothorax, tegulæ, line on lower sides of pleura, spot above posterior coxæ, spot or two spots on pectus, spot on sides of basal plates and on sides of abdominal segments, a line, sometimes interrupted into spots, on disk of the two or three apical segments above, and all the coxæ and trochanters, white or yellowish-white; antennæ slender, apical joints brown; wings hyaline, nervures and

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stigma blackish, pale at base; legs yellow-fulvous, four posterior knees, tips of their tibiæ more or less and most of posterior tarsi, black, four anterior tarsi more or less dusky. Length .40—.45 inch.

Hab.—Canada; New Hampshire; Colorado. (Coll. Am. Ent. Soc.)

Tenthredo decorata Provancher, Nat. Can. x, 200.—"♀.—Length .46 inch.—Black, moderately long; head and thorax strongly punctured; clypeus, labrum, collar, tegulæ in part, a small transverse line on vertex, a small spot on flanks, a large spot on scutellum divided posteriorly into two rounded lobes, a square spot on each side of median line of basal plates, a spot on posterior coxæ and the legs in part, white; clypeus deeply emarginate; labrum scarcely rounded; antennæ of moderate length; legs black, tips of all the superiors (?) before, a spot at base of the posteriors, (?) all the trochanters, anterior tibiæ before and a broad annulus on the two posterior pairs, white; tarsi white, with tips of the joints black; wings hyaline, slightly obscure towards the tip, nervures, costa and stigma black; abdomen robust, densely punctured."

Hab.—Canada. (Coll. Provancher).

Tenthredo nimbipennis Norton; Cress. Trans. Am. Ent. Soc. iv, 155.—♀.—Deep black, smooth and polished, much more slender than *atroviolaceus;* mandibles with a large white spot, tips reddish; antennæ longer than head and thorax, slender; wings large, blackish, strongly violaceous, apex paler; legs slender, anterior knees and tibiæ within, and the four anterior tarsi more or less except tips of joints, pale luteous; abdomen long, flattened, subfusiform, apex obtusely pointed. Length .50—.55 inch.

Hab.—Texas. (Coll. Am. Ent. Soc.)

Tenthredo delta Provancher, (Pachyprotasis), Nat. Can. x, 198.—♀.—Black; face beneath antennæ, broad anterior orbits, dilated at summit of eyes, spot on lower part of cheeks, clypeus, labrum, mandibles except tips, palpi, narrow lateral margin of prothorax, tegulæ, scutellum, large spot on pleura, spot above posterior coxæ, all the coxæ more or less, and the trochanters, white; anterior margin of clypeus truncate; antennæ long and slender, tinged with brown, joints 3—5 long and of equal length; wings hyaline, nervures and stigma fuscous, costal nervure and apex of stigma pale, under wing with one or two middle cells; legs yellow, femora tinged with ferruginous, tips of posterior femora and of their tibiæ black; abdomen shorter than usual and rather broad, honey-yellow, shining, basal plates except spot on apical middle, most of first segment and the fifth and following segments, black; sometimes the apical margin of fifth segment is honey-yellow. Length .27—30 inch.

♂.—Like the ♀ except that the antennæ are longer and paler in color; under wing without middle cells; tips of posterior femora and tibiæ more broadly black, and base of their tarsi is more or less fuscous; abdomen narrower. Length .25 inch.

Hab.—Canada, (Provancher); N. H., N. Y., (Coll. Am. Ent. Soc.)

Lophyrus insularis Cress. Proc. Ent. Soc. Phil. iv, 1.—♀.—Robust, depressed, shining; head and thorax ferruginous; antennæ nearly as long as thorax, black; wings tinged with fuliginous, slightly iridescent; nervures black, lanceolate cell with nearly straight cross-line; legs whitish, middle of femora, apical half of tibiæ and most of tarsi, black; abdomen broad, ovate,

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depressed, dorsal segments black, their sides whitish, two apical segments ferruginous; ventral segments pale, varied on each side with blackish. Length .35 inch.

♂.—Shining black; clypeus, mandibles and palpi, pale testaceous; antennæ black, shorter than thorax, with seventeen rays on each side and a simple terminal joint, basal joint beneath testaceous; wings hyaline, iridescent, nervures and base of stigma dusky, the former pale at base, posterior wings slightly dusky; legs whitish, tarsal claws blackish; abdomen ovate, depressed, extreme apex, above and beneath, ferruginous. Length .27 inch.

Hab.—Cuba. (Coll. Am. Ent. Soc.)

Lophyrus fulvus Norton, Trans. Am. Ent. Soc. iv, 86.—"♀.—Length 0.30; br. wings 0.65 inch.—Antennæ thirteen-jointed, black. Color yellow-brown; a lunate mark through ocelli, touching base of each antenna, scutel, metathorax and band on first segment of tergum, spot on breast and lower half of venter, black; legs pale yellowish, tarsi tipped with black, hinder tarsi darkest; wings faintly smoky. Antennæ short, quite thickened in middle, tapering to ends, subserrate beneath; head not as wide as thorax; body quite stout; spurs simple; lanceolate cell of wings closed in middle, subpetiolate, without oblique cross-line."

Hab.—Texas. (Coll. Am. Ent. Soc.) Belongs to subgenus *Monoctenus* Dahlb.

Lyda apicalis Westwood, Thesaurus Ent. Oxon. 111, pl. 20, fig. 8.—"♂.—Luteo-fulvous, punctured, varied with black; wings honey-yellow; head fulvous, vertex with a large trifid spot united above the clypeus, two spots behind the eyes and the posterior margin, black; mesonotum black, varied with fulvous; tegulæ fulvous; four basal segments of abdomen luteo-fulvous, the two anterior with a large median spot, the third and fourth with a narrow transverse basal band interrupted at middle, and with the remainder of the segments black, with the sides irregularly luteous; antennæ long, very slender, thirty-eight-jointed, fulvous, basal joint thicker, with a median black spot, apices fuscescent; legs luteo-fulvous, femora above black, the posterior pair darker; stigma of anterior wings brown-fulvous; clypeus and mandibles buff, tips of latter black; remaining parts of the mouth buff. Length .10 lines."

Hab.—North America.

Lyda Poppigii Brischke & Zaddach, Schr. phys.-öken Ges. zu Königsb. vi, (1865), 123.—♀.—Dull black; head coarsely punctured; antennæ slender, about thirty-four-jointed, third joint more than twice longer than fourth; wings fuliginous, with a strong æneous reflection, nervures black, second branchial cell without cross-nervure; anterior tibiæ each with one side spur; abdomen broad, ferruginous, basal plates, and most of the last three ventral segments black. Length .50 inch.

Hab.—Georgia, (Berlin Museum); North Carolina, (Morrison; Coll. Am. Ent. Soc.) This is closely allied to *bicolorata* Norton.

Lyda chicoutimiensis Huart, Can. Nat. xi, 149.—"♀.—Length .50 inch.—Black; basal third of antennæ, an elongate, oblique smooth raised spot nearly touching the eye with its outer end, above the insertion of each antenna, the mandibles, and the legs, reddish-yellow; a dot above each eye, a line on

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each side of the head posteriorly, tegulæ, superior margin of prothorax, a spot on the inferior margin, scutellum, lateral margin of abdomen above and a line on disk of ventral segments, white or pale yellow; antennæ with the third joint as long as the two following combined; vertex and mesothorax with coarse punctures; coxæ black, anterior tibiæ with one side spur; wings hyaline with an obscure spot at base of stigma, nervures brown, second branchial cell without cross-nervure."

Hab.—Canada. (Coll. V. A. Huart). This species is compared with *maculiventris* Harris, from which it is distinguished by the white scutellum, the spots on vertex, the two reddish spots on face, and by its greater size.

Lyda frontalis Westwood, Thesaurus Ent. Oxon. p. 110, pl. 20, fig. 7.—♀.—Black; head yellow, a large mark on vertex, enclosing ocelli and sometimes extending to and covering base of clypeus, a more or less distinct spot on middle of occiput, tips of mandibles and palpi, black; remainder of mandibles ferruginous; antennæ about twenty-five-jointed, black, third joint nearly as long as the three following combined; posterior margin of prothorax and tegulæ sometimes luteous; wings fuliginous, violaceous, more or less hyaline at base, nervures black, second branchial cell with incomplete cross-nervure; legs black, anterior tibiæ without side spur; abdomen broad, violaceous-black, immaculate. Length .65—.70 inch.

Hab.—Massachusetts. (Coll. Am. Ent. Soc.)

Lyda insignis Brischke & Zaddach, Schr. phys.-öken Ges. zu Königsb. vi, (1865), p. 179.—"♂.—Shining black; sides of face, basal joint of antennæ beneath, tegulæ, legs except coxæ, and apex of venter, reddish-yellow; antennæ about as long as the body, twenty-four-jointed, the third joint scarcely as long as the fourth and fifth; wings hyaline, nervures and stigma black. Length 4.5 lines, 9.9 mm."

Hab.—Georgia, (Berlin Museum).

Lyda quebeccensis Provancher, Nat. Can. x, 205.—"♀.—Length .36 inch.—Black; margin of clypeus, the lines enclosing the ocelli, two oval dots on the vertex, enclosed by two lines in form of crescent, these last touching the occiput and the eyes and dilated at their extremities, tegulæ, anterior angles, scutellum, postscutellum, a transverse membranous spot below the raised lines of metathorax, legs and abdomen entirely, honey-yellow; antennæ long, subserrate, joint three twice as long as four; wings hyaline, slightly yellowish, nervures black, yellow at base; abdomen rather darker in color than the legs."

Hab.—Canada, (Coll. Provancher).

Lyda Provancheri Huart, Nat. Can. xi, 148.—"♀.—Length .40 inch.—Black; a line bordering the clypeus and receiving three perpendicular lines, the middle one extending opposite the insertion of antennæ, the other two a little longer, bordering the inner side of the eyes, mandibles except tips, palpi, a longitudinal spot on inferior part of cheeks, touching the eyes, and tegulæ, pale yellow; abdomen beneath except a spot at base of each segment, a rather broad band on upper surface, and a transverse band on middle of segments

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four and five above, yellowish-red; antennæ moderately long, covered with a rather dense short pubescence, yellow except a large spot on first joint above which is whitish at tip and clothed with a longer pubescence than on the other joints; third joint as long as the three following combined; legs pubescent, yellowish-red except a spot of more or less extent on coxæ; vertex roughened, shining; wings hyaline, the anterior pair each with a median transverse pale smoky band, stigma black with white spot at base, nervures black, pale at base, second branchial cell with incomplete cross-nervure."

Hab.—Canada, (Coll. V. A. Huart).

Lyda Burquei Provancher, Nat. Can. x, 204.—"♀.—Length .36 inch.—Black; mandibles except tips, anterior margin of clypeus, a median scutatiform spot enclosing a black dot above antennæ, four longitudinal lines on vertex, the two outer ones dilated at their extremities, a spot on the cheeks, tegulæ, two triangular spots united at base on middle lobe of mesothorax, scutellum, postscutellum, legs and tips of coxæ, white; antennæ long, setaceous, serrate beneath, third joint a little longer than the fourth; vertex polished, the longitudinal grooves rather deep; ventral segments narrowly margined at tip with white; dorsal segments 2—4 each with a median reddish spot; wings hyaline, nervures black, second branchial cell with incomplete cross-nervure."

Hab.—Canada, (Coll. Provancher).

Cephus 4-guttatus Westwood, Thesaurus Ent. Oxon. p. 111, pl. 20, fig. 11.—"Black, shining, mesothorax punctured, metathorax bicarinate; the four basal segments of abdomen and the legs, fulvo-testaceous; wings hyaline, the anterior pair with the stigma and two spots at tip, black; head convex and glossy, with a sinuated transverse ridge above antennæ; labrum short, triangular, deeply emarginate in middle of anterior margin; mandibles tridentate, upper tooth much larger than the others; maxillæ with two large flat membraneous lobes; maxillary palpi six-jointed, the joints irregular, fifth very short, oblique, sixth affixed close to base of preceding joint; labial palpi four-jointed, the last oval and about the size of basal joint; antennæ black and slender, (broken off beyond joint twenty-two); abdomen of moderate length; wings large and hyaline, with an oval spot at tip within fourth submarginal cell and a smaller round one in middle of outer middle cell; hind pair of tibiæ with two apical and two middle spurs, middle tibiæ with only one middle spur; tarsal claws with a broad basal tooth. Length 4½ lines."

Hab.—Massachusetts, (Mus. Oxford University). This will probably prove to be the ♀ of *bimaculatus* Norton.

Cephus bicinctus Provancher, (Phyllæcus), Nat. Can. vii, 375; x. 207.—"♀.—Length .50 inch.—Black; a spot beneath the eyes, another smaller one on each side of vertex, a spot on sides of metathorax beneath posterior wings, and a band at summit of segments three and five of abdomen, white; labrum elongate, black; antennæ black, rather short, the joints numerous, thickened beyond the fifth; prothorax elongate, concave in front, depressed, subangulate at the sides, entirely black; scutellum elongate, ovate, even, punctured only; wings hyaline, slightly obscure, nervures black; two radial cells, the first small, second cubital shorter than the first, with an opaque dot towards the

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base near the inferior nervure; legs black, tibiæ and tarsi brown; abdomen straight, compressed, black, with a white membraneous spot at base and a white band at summit of segments three and five; ovipositor short."

Hab.—Canada, (Coll. Provancher).

Cephus cinctus Norton, Trans. Am. Ent. Soc. iv, 86.—"♂.—Length 0.28; br. wings 0.56 inch.—Color black; a square spot on the nasus, a spot curving around each lower orbit and on the middle of each mandible yellow; tegulæ and a spot under each wing, under the neck, on pectus, the sides of basal plates, an irregular dentate band widest at sides, on the first, second and fourth and on the sides of third, fifth and sixth, and apical segments of tergum, and on the apical edge of each segment of vertex, yellow; legs yellow, growing reddish towards the tarsi, trochanters and the anterior pair of femora before, black; wings smoky. Antennæ slightly clavate, eighteen-jointed."

Hab.—Colorado. (Coll. Am. Ent. Soc.)

Xyela senea Norton, Trans. Am. Ent. Soc. iv, 86.—"♂.—Length 0.30; br. wings 0.72 inch.—Antennæ black, head and thorax bronze, with purple reflections, greenish about the face; labrum and palpi pale reddish; abdomen shining steel-blue; legs ferruginous, hinder tibiæ blackish. Third joint of antennæ three times as long as the six remaining joints together, basal joint arcuate; head and thorax delicately, closely sculptured; claws with a strong inner tooth; wings hyaline, nervures as in *tricolor;* of which this may be a variety; on one of the wings there is a supplementary marginal cell."

Hab.—Texas. (Coll. Am. Ent. Soc.)

Oryssus occidentalis Cress. Proc. Ent. Section, 1879, ix.—♂ ♀.—Black, opaque; head coarsely punctured, the vertex gibbous, crowned with six or seven acute tubercles encircling the lower ocellus; clypeus acutely margined at tip which is truncate; cheeks very prominent; joints 3—6 of antennæ more or less white above; thorax depressed, densely punctured; scutellum triangular, acute at tip; wings smoky beyond stigma; knees and line on outer side of tibiæ, white, tarsi fulvo-testaceous, sometimes more or less obfuscated; abdomen shining, ferruginous, basal segment black, scabrous. Length .40—.60 inch.

Hab.—Colorado, Nevada. (Coll. Am. Ent. Soc.)

Oryssus mexicanus Cress. Proc. Ent. Section, 1879, x.—♀.—Black, opaque, coarsely and confluently punctured; vertex crowned with a circular row of prominent tubercles around the lower ocellus, and between the summit of the eyes a coarse transversely rugose prominence; on each side of the face a sharply defined longitudinal carina reaching below to the acutely margined, somewhat recurved tip of clypeus, converging above and connected by a cross-carina below the lower ocellus, the surface within this oblong quadrangular enclosure is reticulated; cheeks silvery-sericeous, a short acute carina on each side above base of mandibles; posterior margin of prothorax above silvery-sericeous; a longitudinal shining ridge on disk of mesothorax and another shorter and less distinct on each side over the tegulæ; scutellum rounded at tip; wings fusco-hyaline, a subhyaline space beneath stigma; tibiæ piceous, tarsi dull ferruginous; abdomen rather shining, basal margin of the segments rufo-testaceous. Length .60 inch.

Hab.—Mexico. (Coll. Am. Ent. Soc.)

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Oryssus Sayi Westwood, Zool. Jour. v, 440; Thesaurus Ent. Oxon. 120, pl. 22, fig. 7.—"♀.—Black; head and thorax punctured; abdomen finely punctured; vertex about the ocelli tuberculated; face with two narrow abbreviated white lines on inner orbits; labrum white; antennæ black, apex of joint three, and fourth and fifth above marked with white; legs black, apex of femora and line on tibiæ above, white; basal half of wings hyaline, apical half fuscous, costa obscure, a small spot near apex of stigma and the tip hyaline, stigma black. Length 7½ lines.

"♂.—Antennæ simple, black, a small white spot in front of joints three and four near tips; face with two small transverse white lines extending from the fore inner margin of the eyes; knees and front of all the tibiæ, white; abdomen with a small triangular white spot at tip above; wings not so strongly colored as in ♀, but with same arrangement of color on submarginal vein and in submarginal cell. Length 5 lines."

Hab.—New Harmony, Ind., ♀ (Mus. Oxford Univ.); Nova Scotia, ♂ (British Museum).

Xiphydria canadensis Provancher, Nat. Can. vii, 373; x. 233.—"♀.—Length .50 inch.—Black; head rugose, except the vertex; a small spot on anterior orbits of eyes, extreme base of antennæ, a broad line starting from the base of mandibles and continuing beneath the eyes and very nearly meeting behind the continuation of two other longitudinal lines which are on the vertex, the upper corner of the angles of prothorax, a small spot on each lateral lobe of mesothorax, two dots at base of metathorax, a spot on sides of abdominal segments two and three, a band at summit of segments three, four and seven, these bands interrupted medially, the four anterior tibiæ, their tarsi, posterior tibiæ except tip, and base of first joint of their tarsi, yellow; venter black, immaculate; wings slightly obscure, tinged with yellowish; cubital cells two and three each with a recurrent nervure; ovipositor extending beyond abdomen one and half lines, base of sheaths reddish; all the coxæ and femora black; posterior tarsi yellowish, tinged with brown."

Hab.—Canada, (Coll. Provancher).

Xiphydria Provancheri (*Xiphidion canadense* Prov. Nat. Can. x, 233).—♀.—Black; vertex and thorax rugose; square spot on clypeus, sometimes reduced or wanting, line beneath eyes, sometimes interrupted, two short longitudinal lines behind ocelli, an elongate spot on upper posterior part of cheeks, upper and lower lateral margins of prothorax and spot on sides of each abdominal segment, white; tegulæ and legs honey-yellow, tips of tarsi fuscous; antennæ entirely black; wings hyaline, iridescent, nervures and stigma black, the second recurrent nervure generally coincides with the second transverso-cubital nervure, but sometimes it is received by the second submarginal cell and occasionally by the third, and in one specimen it is wanting on one wing; abdomen roughened at base, the first segment with a deep transverse subbasal groove. Length .50—.55 inch.

♂.—Smaller than ♀; antennæ longer and more slender, abdominal segments 1—4 each with a lateral white spot; transverse groove at base of first segment broader and not so deep; the white lines behind ocelli longer and somewhat oblique. Length .36 inch.

Hab.—Canada, White Mts. N. H., Mass. Closely allied to *albicornis* Harris, but with the antennæ entirely black.

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Xiphydria Walshii Westwood, Thesaurus Ent. Oxon. 113.—"Black; abdomen piceous, the middle segments laterally margined with white; antennæ fuscous, base luteous; legs fulvous, tips of tarsi fuscous; wings hyaline, nervures and stigma luteo-fuscous; head black, rugose anteriorly, vertex with two abbreviated white lines between the eyes, and the margin beneath and behind the eyes also white; mandibles white, fuscous at tip; antennæ fuscous, slender, fourteen-jointed, basal joint fulvo-fuscous; collar slender, black, the under surface and spot on sides, white; thorax black with two white spots between the wings; abdomen piceous, paler beneath, the intermediate segments narrowly margined with white; coxæ varied with white. Length 3½ lines."

Hab.—New York. (British Museum).

Xiphydria attenuata Norton, ♂; Patton, Canadian Entomologist, xi, 14.—"♀.—Head and thorax black; tibiæ and tarsi pale; wings hyaline; abdomen red, with six yellow spots. Length .40 inch.—Antennæ sixteen-jointed, black, piceous beneath, especially towards tip. Face below and between antennæ, palpi and base of mandibles, fulvous. Eyes, except for a short space above, bordered with yellow, the border covering nearly the whole cheek and the anterior and posterior borders extending backwards to meet on the edge of the occiput, thereby enclosing a spot above the eyes which is black in the centre but shading through piceous into the yellow borders. Space about the ocelli finely rugose, with delicate ridges radiating from each ocellus; vertex behind ocelli polished. A pit or deep puncture midway between lower ocellus and the insertion of antennæ. Thorax closely and finely rugulose, scutellum and enclosure on basal plates polished. Tegulæ, minute spots before tegulæ, one each side above anterior wing, and the cenchri, yellow. Trochanters, tips of coxæ and of femora dull yellow; femora piceous, posterior pair black; basal half of tibiæ and basal joints of tarsi, except at tip, yellow; the remainder of tibiæ and tarsi fulvous, becoming brownish on the posterior tibiæ. Wings hyaline, iridescent, nervures and stigma pale piceous. Basal half of the first segment of abdomen black and roughened with fine confluent punctures; the remainder of this segment and portions of the terminal segment are darker than the other segments of the red polished abdomen. A yellow spot on each side of segments three, four and seven, those on the seventh segment being the largest. Sheath of the ovipositor black; abdomen beneath, except at base of ovipositor, red."

Hab.—Connecticut. (Coll. W. H. Patton). Taken from a dead stick of *Betula nigra*.

Urocerus latifasciatus Westwood (Sirex), Thesaurus Ent. Oxon. 114, pl. 21, fig. 2.—"♂.—Black, punctured, setose; abdomen purplish-black, segments 2—5 fulvous; antennæ twenty-three-jointed, joints 4—10 obscure, rufous, the remainder blackish; head convex, two yellow spots behind the eyes; anterior angles of collar porrect, fulvous; abdomen subopaque with posterior margin of segments shining; apex acute, serrate; femora black, four anterior tibiæ and tarsi fulvous, tibiæ compressed, the posterior pair white at base, the two apical joints of tarsi somewhat fulvous; wings obscure fulvous, apex scarcely darker, stigma brown; the vein which closes the hind portion of the first submarginal cell is continuous with the vein at the end of the long anterior or subcostal cell, causing the first submarginal cell to be shorter and more oblique than in *fulvocincta*; and the vein which forms the hind margin

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of this anterior or subcostal cell does not emit a branch near its apex, so that the small incomplete discoidal cell seen in *fulvocincta* is here wanting. Length 10½ lines."

Hab.—North America. (Mus. Oxford University).

Urocerus gracilis Westwood (Sirex), Thesaurus Ent. Oxon. 114, pl. 21, fig. 4.—"♀.—Elongate-cylindrical, bluish-black, finely punctured, abdomen purple, the last segment narrowed to apex and serrate; ovipositor half the length of abdomen; antennæ long, slender, black, twenty-one-jointed, almost attaining the middle of the abdomen; legs slender, black; wings blackish, tinged with purple; abdomen rather more than twice the length of head and thorax; the portion of the ovipositor which extends beyond the serrated apex of the abdomen equals half the length of the whole abdomen, to which also the wings are equal in length; the vein which closes the first submarginal cell forms a regular curve with that which closes the hind part of the extremity of the long subcostal cell; the vein which closes the hind margin of the cell emits a small branch near its apex, forming a small incomplete discoidal cell. Length 12 lines; of ovipositor beyond apex of abdomen, 4 lines."

Hab.—North America. (Mus. Oxford University).

Urocerus tricolor Provancher, Nat. Can. i, 17; iii, 77; x, 229, fig. 5.—"♀.—Length 1.25 inch.—Black; a spot on vertex behind eyes, eight terminal joints of antennæ, knees, base of all the tibiæ, the first two segments of abdomen and the last comprising the cornus, yellow; head and prothorax hairy, coarsely punctured; legs black, knees, base of four anterior tibiæ, base of first and last joints of their tarsi, posterior tibiæ except tips, first joint of their tarsi except tips, and base of joints two and five, yellow; wings dark fuliginous, with a violaceous reflection, nervures black; abdomen with the second, apical middle of first, and the last segment with cornus, yellow; segments three, four and part of five violaceous-black, the remainder velvety red; cornus rather long, lanceolate, yellow; ovipositor yellow, the valves with a black line on sides, about a third of the length of the abdomen.

"♂.—Black; two spots on vertex behind eyes, apical half of antennæ, and the abdomen, yellow, more or less reddish; legs entirely black; base and extremity of abdomen brown; wings smoky, paler than in ♀."

Hab.—Canada. (Coll. Provancher). This is probably a variety of *Cressoni* Norton.

Additional new species.

Cimbex pacifica.—♀.—Large, brown-ferruginous; cheeks polished, face thickly clothed with short fuscous pubescence; mandibles brown; antennæ fulvous, shading into yellow at tip; prothorax and tegulæ, yellow-ferruginous; mesothorax, except sides of anterior lobe, and pectus, blackish-brown; pleura smooth and shining; wings luteo-hyaline, the apical margin and a cloud before the stigma fuscous, costal nerve ferruginous; legs luteo-ferruginous, a fuscous line on posterior femora above, tarsi yellow; abdomen above straw colored, first segment dark brown edged posteriorly with luteous; venter blackish, apical segment and ovipositor luteous. Length .95 inch.

Hab.—Washington Territory, (Morrison).

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Schizocera tristis.—♀.—Shining black; head very transverse, eyes large, prominent; flagellum flattened, subfusiform; wings hyaline, apical half pale fuliginous, nervures black, stigma with a subhyaline spot, first recurrent nervure coinciding with first transverso-cubital nervure, third submarginal cell broad above, narrowed and rounded beneath, receiving the second recurrent nervure near base or at middle, lanceolate cell petiolate, under wing with two middle cells; knees, four anterior tibiæ, basal half of posterior pair, and base of tarsi more or less, white; extreme apex of abdomen sometimes dull luteous. Length .23 inch.

♂.—Colored like the ♀; flagellum bifurcate, ciliate with short pubescence; legs sometimes dull luteous, with the femora more or less fuscous; abdomen sometimes varied with brown towards the base. Length .23 inch.

Hab.—Washington Territory, (Morrison).

Emphytus stramineipes.—♀.—Slender, black; clypeus, labrum, mandibles except tips, palpi, collar, upper angles of prothorax, pectus, tegulæ, nervures at base of wings, legs entirely, including coxæ, and venter, yellowish-white; antennæ moderately long, pale beneath towards apex, joints 3—5 long, the third longest, 6—9 much shorter and subequal; wings hyaline, iridescent, nervures black, costa and stigma fuscous, the latter pale at base, lanceolate cell with oblique cross-line, under wing without middle cell; apical middle of abdominal segments above more or less pale, the tips whitish above. Length .26 inch.

Hab.—Washington Territory, (Morrison).

Dolerus tibialis.—♂.—Dull black, roughly sculptured, clothed with a short white sericeous pubescence; wings fuliginous, nervures and stigma black; tegulæ, tibiæ and the four or five basal segments of abdomen honey-yellow; sometimes the posterior tibiæ is more or less obfuscated at base and apex. Length .35 inch.

Hab.—Washington Territory, (Morrison). Allied to *aprilis* Norton.

Macrophya texana.—♀.—Dull black; clypeus, labrum, palpi, upper lateral angles of prothorax, scutellum, tegulæ, most of legs and basal plates, yellow; coxæ except tips, apical third of posterior femora and tips of their tibiæ, black; antennæ thickened towards tips, third joint nearly twice the length of fourth, wings tinged with smoky-yellow, especially towards tip, nervures and stigma fuscous, lanceolate cell with short straight cross-line, third segment of abdomen ferruginous above. Length .35 inch.

♂.—Smaller, more slender; apical half of posterior femora black; wings paler, nearly hyaline, iridescent; abdomen, except basal plates, entirely black. Length .25 inch.

Hab.—Texas, (Belfrage). Allied to *pulchella* Klug.

Urocerus tarsalis.—♀.—Small, black; a large white spot on each side of head behind the eyes; antennæ twenty-one-jointed, apical half yellowish; vertex and thorax coarsely rugose, anterior angles of prothorax prominent and vertically sharp; wings dusky, darker on apical margin, stained with yellowish; legs slender, except posterior femora which is, as usual, short and robust, tibiæ fulvous; abdomen fulvous, cornus sublanceolate, sides serrate, apex with a blunt spine, sheaths of ovipositor concolorous with abdomen, ovipositor castaneous. Length to tip of cornus, .65 inch, including ovipositor, .85 inch.

Hab.—Washington Territory, (Morrison).

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Catalogue of the TENTHREDINIDÆ & UROCERIDÆ of North America.

BY E. T. CRESSON.

Fam. TENTHREDINIDÆ.

CIMBEX Oliv.

americana Leach; Norton, Trans. i, 40; Catal. 10, ♂ ♀. Br. Am., U. States.
femorata Kirby, Faun. Bor. Am. iv, 254, ♂.
var. *Ulmi* Peck; Norton, Trans. i, 41; Catal. 11, ♂ ♀.
var. *LaPortei* St. Farg.; Norton, Trans. i, 41; Catal. 11, ♂.
Kirbyi Brullé, Hym. iv, 672, pl. 48, fig. 6, ♂.
var. *luctifera* Klug; Norton, Trans. i, 41; Catal. 11, ♂ ♀.
Viardi St. Farg. Ann. Soc. Ent. Fr. ii, 454, ♀.
var. *decemmaculata* d'Urban; Norton, Trans. i, 42; Catal. 12, ♀.
var. *Dahlbomii* Guér.; Norton, Trans. i, 42; Catal. 12, ♀.
var. *alba* Norton, Trans. i, 42; Catal. 12, ♀.
semidea Cress. Trans. viii, 1, ♀. New Hampshire.
pacifica Cress. Trans. viii, 51, ♀. Washington Territory.
rubida Cress. Trans. viii, 1, ♂ ♀. Nevada, California.
Klugii Leach; Cress. Trans. viii, 36, ♀. St. Domingo.
McLeayi Leach; Cress. Trans. viii, 35, ♂. St. Domingo.

TRICHIOSOMA Leach.

triangulum Kirby; Norton, Trans. i, 43; Catal. 13, ♂ ♀. B. Am., N. H., Col., Van.
var. *lucorum* Kirby, Faun. Bor. Am. iv, 255.
bicolor Harris; Norton, Proc. Bost. Soc. viii, 150, ♂.
var. *aleutiana* Cress. Trans. viii, 1, ♀. Aleutian Islands.
lanuginosa Norton, Trans. i, 44; Catal. 14, ♀. Nevada, California.

ZARAEA Leach.

inflata Norton, Trans. i, 45; Catal. 15, ♀. Connecticut, Illinois.
Abia caprifolium Norton, Trans. i, 46; Catal. 16, ♀.
americana Cress. Trans. viii, 1, ♀. New Hampshire, Missouri, California.

ABIA Leach.

Kennicotti Norton, Trans. i, 46; iv, 77; Catal. 16, ♂ ♀. Canada.
cerasi Fitch; Norton, Trans. i, 47; Catal. 17. New York.

THULEA Say.

nigra Say; Norton, Trans. i, 49; Catal. 19. Mexico.

ACORDULECERA Say.

dorsalis Say; Norton, Trans. i, 49; Catal. 19, ♂ ♀. United States, Mexico.

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CEPHALOCERA Klug.

? calcar Norton, Trans. i, 51; Catal. 20, ♀. Mexico.

SERICOCERA Brullé.

Edwardsii Cress. Trans. viii, 2, ♂ ♀. Mexico.
plumicornis Norton, Trans. i, 52; Catal. 22, ♂. Mexico.
villosus Norton, Trans. i, 53; Catal. 23, ♀. Mexico.
alternator Norton, Trans. i, 53; Catal. 23, ♀. Mexico.

SCHIZOCERA Latr.

abdominalis Cress.; Norton, Trans. i, 55; Catal. 25, ♂. Colorado.
plumigera Klug, (Hylotoma); Nort. Trans. i, 54; Cat. 24, ♂ ♀. E. M. & S. St. Mex.
Cryptus Klugii Leach, Zool. Misc. iii, 125, ♂ ♀.
Krugii Cress. Trans. viii, 2, ♂. Porto Rico.
privata Norton, Trans. i, 56; Catal. 26, ♀. Louisiana.
brunniventris Cress. Trans. viii, 2, ♂ ♀. Nevada.
ebena Norton, Trans. i, 55; Catal. 25, ♂. New York.
tristis Cress. Trans. viii, 52, ♂ ♀. Washington Territory.
maura Cress. Trans. viii, 3, ♂. Nevada.
sericea Norton, Trans. i, 55; Catal. 25, ♀. Maine, Illinois.
? invita Cress. Trans. viii, 3, ♀. Nevada.

ATOMACERA Say.

debilis Say; Norton, Trans. i, 57; Catal. 27, ♂. Indiana.
cellularis Say; Norton, Trans. i, 57; Catal. 27, ♀. Indiana.
ruficollis Norton, Trans. i, 57; Catal. 27, ♀. Pa., Va., Ga., Ill.

THEMOS Norton.

hyalina Norton, Trans. i, 58; Catal. 28, ♂. Pennsylvania?

DIDYMIA St. Farg.

concinna Klug, (Hylotoma); Norton, Trans. i, 59; Catal. 29, ♂. Mexico.
versicolor Klug, (Hylotoma); Norton, Trans. i, 60; Catal. 30, ♂ ♀. Mexico.
fusca Klug, (Hylotoma); Norton, Trans. i, 60; Catal. 30, ♂. Mexico.

PTILIA St. Farg.

biramosa Klug, (Hylotoma); Norton, Trans. i, 61; Catal. 31, ♂ ♀. Mexico.
filiformis Norton, Trans. i, 62; Catal. 32, ♂ ♀. Mexico.
mexicana Cress. Trans. viii, 3, ♂. Mexico.

PTENOS Norton.

nigropectus Norton, Trans. iv, 77; viii, 36, ♂. Texas.
texanus Norton, (Ptilia), Trans. ii, 367; iv, 77; Catal. 221, ♂ ♀. Texas.
niger Norton, Trans. iv, 77; viii, 36, ♂. Texas.

HYLOTOMA Latr.

McLeayi Leach; Norton, Trans. i, 64; iv, 78; Catal. 34, ♂ ♀. Br. Am., U. S.
cærulea Norton, Trans. i, 65; Catal. 35, ♀. Mass., Pa., Va., Cala.
claviceornis Fab. (Tenthredo); Norton, Trans. i, 66; Catal. 36, ♂ ♀. Can., U. S.
analis Leach; Norton, Trans. i, 65; Catal. 35, ♂.
virescens Klug; Norton, Trans. i, 65; Catal. 35, ♂.

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abdominalis Leach; Norton, Trans. i, 66; Catal. 36, ♂ ♀. Me., Mass., Ct., Ga.
scapularis Klug; Norton, Trans. i, 67; Catal. 37, ♂ ♀. Canada, United States.
calcanea Say, Bost. Jour. i, 211; Walsh, Tr. St. Louis Ac. 1873, 68, ♂ ♀.
dorsalis Klug; Norton, Trans. i, 67; Catal. 37, ♀; Trans. iv, 78, ♂. Mexico.
humeralis Beauv.; Norton, Trans. i, 68; Catal. 38, ♂ ♀. United States.
scutellata Say, Bost. Jour. i, 211; Walsh, Tr. St. Louis Ac. 1873, 65, ♂ ♀.
sanguinea Klug, Berl. Mag. vi, 299, ♀.
miniata Klug; Norton, Trans. i, 70; Catal. 40, ♂. Georgia.
scutellata St. Farg. Mon. Tenth. 47.
pectoralis Leach; Norton, Trans. i, 70; Catal. 40, ♀. Can., E. M. & W. States.
dulciaria Say; Norton, Trans. i, 70; Walsh, Tr. St. Louis Ac. 1873, 67, ♂ ♀.
coccinea Fabr.; Norton, Trans. i, 71; Catal. 41. Carolina.
? ? Walsh, Trans. St. Louis Acad. 1873, 66, ♂ ♀. Illinois.
rubra Klug; Norton, Trans. i, 71; Catal. 41, ♀. New York.
rubiginosa Beauv. (Tenthredo); Norton, Trans. i, 72; Catal. 42, ♀. N. Y., Ga.
erythrosoma Leach, Zool. Misc. iii, 124, ♀.
mellina Cress. Trans. viii, 3, ♀. Nevada.
procera Klug; Norton, Trans. i, 68; Catal. 38, ♂. Mexico.
poecila Klug; Norton, Trans. i, 68; Catal. 38, ♂ ♀. Mexico.
fascialis Norton, Trans. i, 69; Catal. 39, ♀. Mexico.
semifusca Norton, Trans. i, 69; Catal. 39, ♂. Mexico.
lepida Klug; Norton, Trans. i, 71; iv, 78; Catal. 41, ♂. Mexico.
consobrina Norton, Trans. iv, 78; viii, 36, ♀. Mexico.

PACHYLOTA Westw.

varicolor Norton, Trans. iv, 79; viii, 37, ♀. Mexico.

CLADIUS Illiger.

isomera Harris; Norton, Trans. i, 74; Catal. 44, ♂ ♀. E. M. & W. States.
simplicicornis Norton, Trans. ii, 367; Catal. 221, ♂. Maine.
aequalis Norton, Trans. iv, 78; viii, 37, ♂. Connecticut.

PRISTIPHORA Latr.

syeophanta Walsh; Norton, Trans. i, 76; Catal. 46, ♂. Illinois.
tibialis Norton, Trans. i, 76; Catal. 46, ♂ ♀. United States.
relativa Norton, Trans. i, 77; Catal. 47, ♀. Hudson's Bay Territory.
identidem Norton, Trans. i, 77; iv, 79; Catal. 47, ♀. Eastern States, Illinois.
idiota Norton, Trans. i, 77; Catal. 47, ♂.
grossulariae Walsh; Norton, Trans. i, 77; Catal. 47, ♂ ♀. Can., N. Y., Iowa.
jocularis Cress. Trans. viii, 3, ♂ ♀. Nevada.

EUURA Newman.

orbitalis Norton, Trans. i, 79; Catal. 49, ♂ ♀. Labr., E. M. & W. States.
genuina Walsh, Proc. vi, 250, ♂ ♀.
var. *nigra* Norton, Trans. i, 79; Catal. 49, ♀.
s. ovum Walsh; Norton, Trans. i, 80; Catal. 50, ♂ ♀. Illinois.
s. nodus Walsh; Norton, Trans. i, 82; ii, 368; Catal. 52, 222, ♂ ♀. U. States.
salicicola Smith, N. Am. Ent. i, 41; Trans. viii, 37, ♂ ♀. Illinois.
perturbans Walsh; Norton, Trans. i, 83; Catal. 53, ♂ ♀. Illinois.
albiricta Cress. Trans. viii, 4, ♀. Nevada.

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CRÆSUS Leach.

latitarsus Norton, Trans. i, 84; Catal. 54, ♀. Mass., Pa., Ill.
laticulus Norton, Trans. ii, 368; Catal. 222, ♀. Massachusetts.

NEMATUS Jurine.

concolor Norton, Trans. i, 196; Catal. 58, ♂ ♀. Mass., Ct., N. Y.
rapax Cress. Trans. viii, 4, ♂. Nevada.
labradoris Norton, Trans. i, 196; Catal. 58, ♂ ♀. Labrador.
malacus Norton, Trans. i, 196; Catal. 58, ♀. Labrador.
vicinalis Cress. Trans. viii, 4, ♀. California.
nigrofemoratus Cress. Trans. viii, 4, ♀. Nevada.
latus Cress. Trans. viii, 4, ♀. Nevada.
iridescens Cress. Trans. viii, 5, ♂. Nevada.
parvus Cress. Trans. viii, 5, ♀. Nevada.
extensicornis Norton, Trans. i, 197; Catal. 59, ♂ ♀. New Hampshire.
marylandicus Norton, Trans. i, 197; Catal. 59, ♂. Massachusetts, Maryland.
fallax Norton, Trans. i, 198; Catal. 60, ♂. Labrador.
suratus Fitch; Norton, Trans. i, 198; Catal. 60. New York.
winnipeg Norton, Trans. i, 198; Catal. 60, ♀. Hudson's Bay Territory.
monela Norton, Trans. i, 198; Catal. 60, ♂. Labrador.
subalbatus Norton, Trans. i, 199; Catal. 61, ♀. Can., Mass., Pa.
palliventris Cress. Trans. viii, 5, ♀. Nevada.
ruralis Cress. Trans. viii, 5, ♀. Nevada.
corniger Norton, Trans. i, 199; Catal. 61, ♂ ♀. Can., E. M. & W. States.
luteolus Norton, Trans. i, 200; Catal. 62, ♂. H. B. T., E. & W. States.
satkatchewan Norton, Trans. i, 200; Catal. 62, ♀. Hudson's Bay Territory.
violaceipennis Norton, Trans. i, 201; Catal. 63, ♂ ♀. Mass., Ct.
nigritus Norton, Trans. i, 201; Catal. 63, ♂. Connecticut.
ventralis Say; Norton, Trans. i, 201; Catal. 63, ♂ ♀. East. & Mid. States.
nigropectus Cress. Trans. viii, 6, ♀. Nevada.
luteipes Cress. Trans. viii, 6, ♀. Nevada.
Dimmockii Cress. Trans. viii, 6, ♀. New Hampshire.
longicornis Esch.; Norton, Trans. i, 202; Catal. 64. Alaska.
proximatus Norton, Trans. i, 202; Catal. 64, ♂ ♀. Canada, Eastern States.
pallicornis Norton, Trans. i, 203; Catal. 65, ♂ ♀. Eastern & Western States.
pallifrons Cress. Trans. viii, 6, ♂. Texas.
obscurus Norton, Trans. i, 203; Catal. 65, ♀. Massachusetts.
s. pisum Walsh; Norton, Trans. i, 204; Catal. 66, ♂ ♀. Connecticut, Illinois.
militaris Cress. Trans. viii, 7, ♀. New Hampshire.
rufofasciatus Norton, Trans. i, 205; Catal. 67, ♀. Hudson's Bay Territory.
notabilis Cress. Trans. viii, 7, ♀. Massachusetts.
latifasciatus Cress. Trans. viii, 7, ♀. New Hampshire.
erythrogaster Norton, Trans. i, 205; Catal. 67, ♀. E. M. & W. States, Cala.
luteotorgum Norton, Trans. i, 206; Catal. 68, ♂ ♀. Eastern States.
Edwardsii Cress. Trans. viii, 7, ♀. California.
limbatus Cress. Trans. viii, 8, ♀. Illinois.
corylus Cress. Trans. viii, 8, ♀. Pennsylvania.
fur Walsh; Norton, Trans. i, 206; Catal. 68, ♂. Illinois.
hudsonicus Norton, Trans. i, 207; Catal. 69, ♀. Hudson's Bay Territory.

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sumptus Norton, Trans. i, 207; Catal. 69, ♂. Maine.
pleuricus Norton, Trans. i, 208; Catal. 70, ♀. British America.
ventricosus Klug, (Tenth.); Nort., Tr. i, 208; Cat. 70, ♂ ♀. Can., E. M. & W. St.
discolor Cress. Trans. viii, 8, ♀. Colorado.
lateralis Norton, Trans. i, 211; Catal. 73, ♀. Maine, New York.
desmodioides Walsh; Norton, Trans. i, 211; Catal. 73, ♂ ♀. Illinois.
fulvipes Norton, Trans. i, 212; Catal. 74, ♂ ♀. Labrador, Eastern States.
crassus Esch.; Norton, Trans. i, 213; Catal. 75. Alaska.
placentus Norton, Trans. i, 213; Catal. 75, ♂ ♀. Labrador, Canada, Maine.
agilis Cress. Trans. viii, 9, ♂. Nevada.
nevadensis Cress. Trans. viii, 9, ♂ ♀. Nevada.
pectoralis Cress. Trans. viii, 9, ♀. Colorado, Nevada.
inquilinus Walsh; Norton, Trans. i, 213; Catal. 75, ♂ ♀. Illinois.
longulicornis Norton, Trans. i, 214; Catal. 76, ♂ ♀. B. Am., E. M. & W. States.
longicornis Say, (nec. Esch.), Bost. Jour. i, 219.
trilineatus Norton, Trans. i, 215; iv, 79; Catal. 77, ♂ ♀. Can., E. & M. States.
vertebratus Say; Norton, Trans. i, 215; Catal. 77, ♀. E. M. & W. States.
integer Say; Norton, Trans. i, 216; Catal. 78, ♀. E. M. & W. States.
s. pomum Walsh; Norton, Trans. i, 216; Catal. 78, ♂ ♀. Illinois.
hospes Walsh; Norton, Trans. i, 218; Catal. 80, ♂ ♀. Illinois.
trivittatus Norton, Trans. i, 218; Catal. 80, ♀. H. B. T., N. Y., Ill., Nev., Cala.
dorsivittatus Cress. Trans. viii, 10, ♀. Nevada.
bivittatus Norton, Trans. i, 219; Catal. 81, ♀. Can., East. & West. States.
suadus Cress. Trans. viii, 10, ♀. New Hampshire.
aureopectus Norton, Trans. i, 219; Catal. 81, ♀. Eastern & Middle States.
mellinus Cress. Trans. viii, 10, ♀. Nevada.
brunneus Norton, Trans. i, 205; Catal. 67, ♀. Colorado.
mendicus Walsh; Norton, Trans. i, 220; Catal. 82, ♂ ♀. Illinois.
chloreus Norton, Trans. i, 221; iv, 80; Catal. 83, ♀. H. B. T., Ct., Tex.
stigmatus Norton, Trans. i, 221; Catal. 83, ♀. Massachusetts.
monochroma Norton, Trans. i, 221; Catal. 83, ♀. Massachusetts.

MESSA Leach.

hyalina Norton, Trans. i, 222; Catal. 84, ♀. Eastern & Middle States.

PERRERYIA Brullé.

compta Norton, Trans. i, 223; Catal. 85, ♂. Mexico.
capitulum Norton, Trans. i, 223; Catal. 85, ♂ ♀. Mexico.

DICTYNNA Westw.

cordoviensis Norton, Trans. iv, 81; viii, 38, ♂. Mexico.
polita Norton, Trans. iv, 81; viii, 38, ♂. Mexico.

AULACOMERUS Spin.

? ebenus Cress. Trans. viii, 10, ♀. Colorado.

FENUSA Leach.

curta Norton, Trans. i, 225; Catal. 87, ♀. Pennsylvania.
ambigua Norton, Trans. i, 225; Catal. 87, ♂. Pennsylvania, Illinois.

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EMPHYTUS Leach.

inornatus Say, (Dolerus); Norton, Trans. i, 227; Catal. 89, ♂ ♀. E. M. & S. St.
pallipes Prov. Nat. Can. x, 66; Trans. viii, 38, ♀. Canada.
apertus Norton, Trans. i, 228; Catal. 90, ♂ ♀. Canada, United States.
stramineipes Cress. Trans. viii, 52, ♀. Washington Territory.
mellipes Norton, Trans. i, 228; Catal. 90, ♂ ♀. Can., East. & Mid. States.
cinctipes Norton, Trans. i, 229; Catal. 91, ♂ ♀. Canada, Maine, New York.
varianus Norton, Trans. i, 229; Catal. 91, ♂ ♀. Canada, United States.
versicolor Norton, Trans. i, 230; Catal. 92, ♀. Virginia, Illinois.
testaceus Norton, Trans. i, 230; Catal. 92, ♀. Pa., Del., Va.
semicornis Say; Norton, Trans. i, 231; Catal. 93, ♀. Connecticut, Indiana.
tarsatus Say; Norton, Trans. i, 231; Catal. 93, ♂ ♀. Canada, United States.
Bollii Norton, Trans. iv, 80; viii, 38, ♀. Texas.
maculatus Norton, Trans. i, 232; iv, 80; Catal. 94, ♂ ♀. Canada, United States.
improbus Cress. Trans. viii, 11, ♂ ♀. Nevada.
platycerus Say; Norton, Trans. i, 232; Catal. 94, ♂. Indiana.
recens Say; Norton, Trans. i, 232; Catal. 94, ♂. Indiana.
articulatus Klug; Norton, Trans. i, 233; Catal. 95, ♂. Maryland.

DOLERUS Leach.

unicolor Beauv. (Tenthredo); Norton, Trans. i, 234; Catal. 96, ♂ ♀. U. States.
sericeus Say; Norton, Trans. i, 235; Catal. 97, ♂ ♀. Can., E. & M. St., Cala.
collaris Say; Norton, Trans. i, 236; Catal. 98, ♀. Can., E. M. & W. States.
arvensis Say; Norton, Trans. i, 235; Catal. 97, ♀. Canada, United States.
aprilis Norton, Trans. i, 236; Catal. 98, ♂ ♀. H. B. T., Can., U. States.
tibialis Cress. Trans. viii, 52, ♂. Washington Territory.
apricus Norton, Trans. i, 236; Catal. 98, ♂ ♀. H. B. T., E. M. & W. States.
albifrons Norton, Trans. i, 237; Catal. 99, ♂ ♀. Canada, United States.
abdominalis Norton, Trans. i, 237; Catal. 99, ♂ ♀. Mass., Ct., Ga.
distinctus Norton, Trans. iv, 82; viii, 39, ♀. California.
similis Norton, Trans. i, 238; Catal. 100, ♀. United States.
var. *yukonensis* Norton, Trans. iv, 82, ♂ ♀. Alaska.
maculicollis Norton, Trans. i, 238; Catal. 100, ♀. Mass., N. Y., Col.
bicolor Beauv. (Tenthredo); Norton, Trans. i, 238; Catal. 100, ♂ ♀. U. States.
versa Norton, Trans. i, 239; Catal. 101, ♀. Massachusetts, Maryland.
coccinifera Norton, Trans. iv, 82; viii, 39, ♀. California.
tejonensis Norton, Trans. i, 239; Catal. 101, ♀. Nevada, California.
coloradensis Cress. Trans. viii, 11, ♀. Colorado.

DINEURA Dahlb.

linita Norton, Trans. i, 240; Catal. 102, ♀. Maine.
lateralis Norton, Trans. i, 240; Catal. 102, ♀. Maine.
litura Klug, (Tenthredo); Norton, Trans. i, 240; Catal. 102. Georgia.
luteipes Cress. Trans. viii, 11, ♂. Maine.

HEMICHROA Steph.

albidovariata Norton, Trans. iv, 81; viii, 39, ♀. Florida, Texas.
fraternalis Norton, Trans. iv, 81; viii, 39, ♂. Texas.

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MESONEURA Hartig.

parva Norton, Trans. i, 241; Catal. 103, ♂. Connecticut.
albipes Cress. Trans. viii, 11, ♀. Nevada.

SCIAPTERYX Stephens.

obesus Say, (Allantus); Norton, Trans. i, 264; Catal. 126, ♂. Massachusetts.
rotundus Norton, Trans. i, 242; Catal. 104, ♀. Canada, Connecticut.
punctum Prov. Nat. Can. x, 72; Trans. viii, 40, ♀. Canada.

ATHALIA Leach.

proxima Klug, (Tenthredo); Norton, Trans. i, 243; Catal. 105, ♂ ♀. Md.

SELANDRIA Leach.

Blennocampa Hartig.

carbonaria Cress. Trans. viii, 12, ♀. Georgia, Missouri.
floridana Cress. Trans. viii, 12, ♂. Florida.
parva Cress. Trans. viii, 12, ♂. Colorado.
pygmæa Say, (Tenthredo); Long's 2d. Exp. ii, 318, ♂ ♀. Can., Mass., Ct.
— *vitis* Harris; Norton, Trans. i, 245; Catal. 107, ♂ ♀.
inhabilis Harris; Norton, Trans. i, 246; Catal. 108, ♂ ♀. N. H., Mass.
Sumichrasti Norton, Trans. iv, 82; viii, 40, ♀. Mexico.
bipartita Cress. Trans. viii, 12, ♂. Texas.
capitalis Norton, Trans. i, 247; Catal. 109, ♀. New York.

Monophadnus Hartig.

barda Say, (Allantus); Nort., Trans. i, 247; Cat. 109, ♂ ♀. Can., E. M. & W. St.
dubia Cress.; Norton, Trans. i, 248; Catal. 110, ♀.
mexicana Norton, Trans. i, 248; iv, 84; Catal. 110, ♂ ♀. Mexico.
fascipennis Norton, Trans. iv, 84; viii, 40, ♂ ♀. Mexico.
marginicollis Norton, Trans. i, 249; Catal. 111, ♀. Massachusetts, New York.
diluta Cress. Trans. viii, 12, ♀. Canada, Missouri.
ochra Norton, Trans. i, 249; Catal. 111, ♂. Mexico.
rubi Harris; Norton, Trans. i, 249; Catal. 111, ♀. Can., East. & West. States.
nigella Cress. Trans. viii, 12, ♀. Nevada.
media Norton, Trans. i, 250; Catal. 112, ♂ ♀. New Jersey.
irrogata Cress. Trans. viii, 13, ♀. Colorado.
tiliæ Norton, Trans. i, 250; Catal. 112, ♂ ♀. Canada, Connecticut, Illinois.
caryæ Norton, Trans. iv, 83; viii, 40, ♂ ♀. Connecticut.
rudis Norton, Trans. i, 251; Catal. 113, ♂ ♀. East. Mid. & West. States.
nevadensis Cress. Trans. viii, 13, ♂ ♀. Nevada.
montivaga Cress. Trans. viii, 13, ♀. Nevada.
inæquidens Norton, Trans. iv, 84; viii, 41, ♀. Florida, Texas.
Rileyi Cress. Trans. viii, 13, ♀. Missouri.
rufula Norton, Trans. i, 251; Catal. 113, ♂. Connecticut.
parca Cress. Trans. viii, 13, ♂. Texas.
longipennis Norton, Trans. iv, 84; viii, 41, ♀. Mexico.
fumipennis Norton, Trans. i, 252; Catal. 114, ♂ ♀. United States.
nubilipennis Norton, Trans. i, 252; Catal. 114, ♂ ♀. Can., E. & W. States.
scelesta Cress. Trans. viii, 14, ♂. Colorado, Nevada.
albicollis Norton, Trans. iv, 85; viii, 42, ♂. Texas.

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Hoplocampa Hartig.

halcyon Norton, Trans. i, 252; Catal. 114, ♂ ♀. Can., E. M. & W. States.
flavicornis Prov. Nat. Can. x, 100, ♂.
montana Cress.; Norton, Trans. i, 253; Catal. 115, ♀. Colorado.
spissipes Cress. Trans. viii, 14, ♀. Colorado.
gentilis Cress. Trans. viii, 14, ♂. Colorado.
lenis Cress. Trans. viii, 14, ♂. Colorado.

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nova Norton, Trans. i, 254; Catal. 116, ♀. Maine.
sodalis Cress. Trans. viii, 14, ♀. Colorado.

Eriocampa Hartig.

obsoleta Norton, Trans. i, 254; Catal. 116, ♂ ♀. Can., East. & South. States.
cerasi Peck; Norton, Trans. i, 254; Catal. 116, ♀. East. Mid. & West. States.
fasciata Norton, Trans. i, 256; Catal. 118, ♂ ♀. Massachusetts, Illinois.
rosæ Harris; Norton, Trans. i, 256; Catal. 118, ♂ ♀. Can., Me., Ct., N. C.
ignota Norton, Trans. i, 257; Catal. 119, ♀. Maine, Connecticut, Texas.
quercus-alba Norton, Trans. i, 258; iv, 85; Catal. 120, ♂ ♀. Ct., Ill., Tex.
obscurata Cress. Trans. viii, 15, ♂ ♀. Colorado.
Belfragei Cress. Trans. viii, 15, ♀. Texas.

Selandria Hartig.

flavipes Norton, Trans. i, 258; iv, 85; Catal. 120, ♂ ♀. Can., U. States, Mex.
ruficollis Norton, Trans. i, 259; Catal. 121, ♂. Mexico.
coccinata Norton, Trans. iv, 85; viii, 42, ♀. Mexico.
decolorata Cress. Trans. viii, 15, ♂. Colorado.
curialis Cress. Trans. viii, 15, ♂ ♀. Mexico.

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obtusa Klug, (Tenthredo); Norton, Trans. i, 259; Catal. 121. Georgia.
labiata Klug, (Tenthredo); Norton, Trans. i, 260; Catal. 122. Georgia.

ALLANTUS Panz.

originalis Norton, Trans. i, 261; Catal. 123, ♀. Labr., N. H., Col., Nev.
opimus Cress. Trans. viii, 15, ♂ ♀. Vancouver's Island.
basilaris Say, (Tenth.); Nort., Trans. i, 261; Cat. 123, ♂ ♀. E. M. & W. St., Cal.
dubius Norton, Trans. i, 262; Catal. 124; Patton, Can. Ent. xi, 13, ♂ ♀. Mass., Ct.
ornaticeps Cress. Trans. viii, 16, ♂ ♀. Nevada.
nigriceps Cress. Trans. viii, 16, ♂ ♀. Nevada.
elegantulus Cress. Trans. viii, 17, ♂ ♀. Nevada.
annularis Norton, Trans. i, 262; Catal. 124, ♂ ♀. California.
interruptus Norton, Trans. i, 263; Catal. 125, ♀. California.
limbatus Cress. Trans. viii, 17, ♀. California.
maximus Norton, Trans. i, 263; Catal. 125, ♀. Washington Territory.
unicinctus Norton, Trans. i, 264; Catal. 126, ♂ ♀. Colorado.
afflictus Cress. Trans. viii, 17, ♂ ♀. Nevada.
nevadensis Cress. Trans. viii, 17, ♀. Nevada.
occidaneus Cress. Trans. viii, 18, ♀. Colorado, New Mexico.

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MACROPHYA Dahlb.

excavata Norton, (Allantus); Trans. i, 266; iv, 86; Cat. 128, ♂ ♀. E. M. & W. St.
pluricincta Norton, Trans. i, 267; Catal. 129, ♂ ♀. California.
spinota Say, (Allantus); Nort., Trans. i, 268; Cat. 130, ♂ ♀. Can., E. M. & W. St.
pulchella Klug, (Tenthredo); Nort., Trans. i, 268; Cat. 130, ♂ ♀. E. S. & W. St.
Allantus flavolineatus Norton, Bost. Jour. vii, 259.
texana Cress. Trans. viii, 52, ♂ ♀. Texas.
annulipes Cress. Trans. viii, 18, ♀. Nevada.
lineata Norton, Trans. i, 269; Catal. 131, ♀. Canada, Connecticut.
flavicoxa Norton, (Allantus), Trans. i, 269; Catal. 131, ♂ ♀. Can., U. States.
incerta Norton, (Allantus), Trans. i, 269; Catal. 131, ♂ ♀. Can., E. M. & W. St.
pannosa Say, (Allantus); Norton, Trans. i, 270; Catal. 132, ♂ ♀. E. M. & W. St.
proximata Norton, Trans. i, 270; Catal. 132, ♀. Connecticut.
maura Cress. Trans. viii, 18, ♀. Nevada.
externa Say, (Allantus); Norton, Trans. i, 271; Catal. 133, ♀. Can., Mass., Ct.
jugosa Cress. Trans. viii, 18, ♂. California.
tibiator Norton, Trans. i, 271; Catal. 133, ♂ ♀. Canada, United States.
albomaculata Norton, (Allantus), Trans. i, 272; Catal. 134, ♂ ♀. Can., E. & M. St.
pumila Norton, Trans. i, 272; Catal. 134, ♂. California.
fuliginea Norton, Trans. i, 273; Catal. 135, ♀. Mass., Va., Ill.
subviolacea Cress. Trans. viii, 18, ♀. California.
dejecta Norton, (Allantus), Trans. i, 273; Catal. 135, ♂. New York.
contaminator Prov. Nat. Can. x, 105; Trans. viii, 42, ♀. Canada.
nigra Norton, (Allantus), Trans. i, 273; Catal. 135, ♀. Can., N. H., Ct.
oregona Cress. Trans. viii, 19, ♀. Oregon.
trisyllaba Norton, (Allantus), Trans. i, 274; Catal. 136, ♂ ♀. Can., U. S., Mex.
zonalis Norton, Trans. i, 274; Catal. 136, ♀. Massachusetts.
varia Norton, (Allantus), Trans. i, 275; Catal. 137, ♀. N. H., Mass., Ct.
eurythmia Norton, Trans. i, 276; Catal. 138, ♂ ♀. H. B. T., Can.
fascialis Norton, Trans. i, 276; Catal. 138, ♀. Connecticut, Massachusetts.
bifasciata Say, (Allantus); Norton, Trans. i, 277; Catal. 139, ♀. Arkansas.
medius Norton, Proc. Bost. Soc. ix, 118.
formosa Klug, (Allantus); Norton, Trans. i, 277; Catal. 139, ♂ ♀. U. States.
Allantus bicinctus Norton, Bost. Jour. vii, 241, ♂ ♀.
cestus Say, (Allantus); Norton, Trans. i, 277; Catal. 139, ♂ ♀. Maine.
succincta Cress. Trans. viii, 19, ♀. Georgia, Texas.
intermedia Norton, (Allantus), Trans. i, 278; Catal. 140, ♂ ♀. United States.
goniphora Say, (Allantus); Norton, Trans. i, 279; Catal. 141, ♂ ♀. E. M. & W. St.
trosula Norton, (Allantus), Trans. i, 279; Catal. 141, ♀. Mass., Ct., Md.
fumator Norton, Trans. i, 279; Catal. 141, ♀. California.
bicolorata Cress. Trans. viii, 19, ♀. California.
omega Norton, (Pachyprotasis), Trans. i, 280; Catal. 142, ♂ ♀. Can., E. & W. St.

TAXONUS Meg.

nigrisoma Norton, Trans. ii, 211; Catal. 143, ♀. Can., Mass., Col.
unicinctus Norton, Trans. ii, 211; Catal. 143, ♂ ♀. Connecticut, Pennsylvania.
multicolor Norton, (Strongyl.), Trans. ii, 212; Cat. 144, ♂ ♀. Can., E. & M. St.
dubitatus Norton, Trans. ii, 212; Catal. 144, ♂ ♀. Canada, United States.
amicus Norton, Trans. ii, 213; Catal. 145, ♂ ♀. Canada, New Hampshire.
albidopictus Norton, Trans. ii, 213; Catal. 145. Virginia, Illinois.

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STRONGYLOGASTER Dahlb.

terminalis Say, (Tenth.); Nort., Trans. ii, 215; Cat. 147, ♂ ♀. Can., E. M. & S. St.
Allantus mellosus Norton, Trans. ii, 215; Catal. 147, ♂ ♀.
pallidicornis Norton, Trans. ii, 216; Catal. 148, ♀. Mass., N. Y., Pa.
apicalis Say, (Allantus); Norton, Trans. ii, 216; Catal. 148, ♂ ♀. Can., U. S.
Allantus abdominalis Norton, Bost. Jour. vii, 238, ♂ ♀.
epicera Say, (Allantus); Nort., Trans. ii, 217; Cat. 149, ♂ ♀. Can., E. M. & W. St.
rufocinctus Norton, (Allantus), Trans. ii, 217; Cat. 149, ♂ ♀. Can., E. M. & S. St.
impressatus Prov. Nat. Can. x, 170; Trans. viii, 42, ♀. Canada.
pallipes Say, (Allantus); Norton, Trans. ii, 218; Catal. 150. United States.
pinguis Norton, (Allantus), Trans. ii, 218; Catal. 150, ♂ ♀. Can., Mass., Ct.
tacitus Say, (Allantus); Nort., Trans. ii, 219; Cat. 151, ♂ ♀. Can., E. M. & S. St.
rufescens Norton, (Allantus), Trans. ii, 220; Catal. 152, ♀. Maine.
longulus Norton, Trans. ii, 220; Catal. 152, ♀. Maine, Massachusetts.
distans Norton, Trans. ii, 220; Catal. 152, ♀. Nevada, California.
fidus Cress. Trans. viii, 19, ♀. Colorado, Nevada, California.
multicinctus Norton, Trans. ii, 221; Catal. 153, ♀. Virginia.
annulosus Norton, Trans. ii, 221; Catal. 153, ♀. Can., Me., Mass.
tibialis Cress. Trans. viii, 19, ♀. Nevada.
rubripes Cress. Trans. viii, 20, ♀. Colorado.
politus Prov.; Cress. Trans. viii, 20, ♀. Canada.
soriculatipes Prov.; Cress. Trans. viii, 20, ♀. Canada, Illinois.
unicus Norton, Trans. ii, 221; Catal. 153, ♀. New York.
meritorius Norton, Trans. ii, 221; Catal. 153, ♂ ♀. Mexico.
nigritorius Norton, Trans. ii, 222; Catal. 154, ♂ ♀. Mexico.
illuminatus Norton, Trans. ii, 222; Catal. 154, ♂ ♀. Mexico.
fulviventris Norton, Trans. ii, 222; Catal. 154, ♂ ♀. Mexico.
lineatus Norton, Trans. ii, 223; Catal. 155, ♂ ♀. Mexico.
nigricans Norton, Trans. ii, 223; Catal. 155, ♂ ♀. Mexico.
nigredo Norton, Trans. ii, 223; Catal. 155, ♂. Mexico.

PŒCILOSTOMA Dahlb.

inferentia Norton, Trans. ii, 224; Catal. 156, ♂. Connecticut.
albosecta Prov. (Strongylogaster), Nat. Can. x, 168; Trans. viii, 43, ♀. Canada.

TENTHREDO Leach.

grandis Norton, (Allantus), Trans. ii, 227; Catal. 159, ♂ ♀. Can., U. States.
mellina Norton, (Allantus), Trans. ii, 227; Catal. 159, ♂ ♀. Labr., Can., U. S.
xanthus Norton, Trans. ii, 228; Catal. 160, ♀. Colorado.
obscuripennis Cress. Trans. viii, 20, ♀. Nevada, California.
ruficolor Norton, Trans. ii, 228; Catal. 160, ♀. Can., Me., N. H.
verticalis Say; Norton, Trans. ii, 228; Catal. 160, ♂ ♀. Can., E. M. & W. St.
cingulata Prov. Nat. Can. x, 196, ♀.
lobata Norton, (Allantus), Trans. ii, 229; Catal. 161, ♀. Mass., Ct., Va.
angulifera Norton, (Allantus), Trans. ii, 229; Catal. 161, ♂ ♀. Can., E. & M. St.
ventralis Say, (Allantus); Norton, Trans. ii, 230; Catal. 162. Arkansas.
formosa Norton, Trans. ii, 231; Catal. 163, ♂ ♀. Maine, Massachusetts.
angulata Norton, Trans. ii, 230; Catal. 162, ♂ ♀. East. Mid. & West. States.
eximia Norton, Trans. ii, 231; Catal. 163, ♂ ♀. Me., N. H., Mass.
dissimilis Norton, (Allantus), Trans. ii, 231; Catal. 163, ♀. Illinois.

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pallicoxa Prov. Nat. Can. x, 201; Trans. viii, 43, ♀. Canada.
signata Norton, (Allantus), Trans. ii, 232; Catal. 164, ♂ ♀. Can., Me., Mass.
basilaris Prov. Nat. Can. x, 196, ♀.
rufopediba Norton, Trans. ii, 234; Catal. 166, ♂. Can., E. M. & W. States.
variata Norton, Trans. ii, 232; Catal. 164, ♂ ♀. Colorado, Nevada, California.
pleuralis Cress.; Norton, Trans. ii, 233; Catal. 165, ♂ ♀. Brit. Am., Col.
variegata Norton, Trans. ii, 233; Catal. 165, ♂. Col., N. M., Nev.
scævola Cress. Trans. viii, 20, ♀. Nevada.
lacticincta Cress. Trans. viii, 21, ♂ ♀. Nevada.
suavis Cress. Trans. viii, 21, ♂. Nevada.
bella Cress. Trans. viii, 21, ♀. Colorado.
varipicta Norton, Trans. ii, 234; Catal. 166, ♀. Nevada, California.
luteipes Cress. Trans. viii, 21, ♀. Nevada.
parvula Cress. Trans. viii, 22, ♂. California.
varians Norton, Trans. ii, 235; Catal. 167, ♂. Canada, New Hampshire.
nupera Cress. Trans. viii, 22, ♂. Nevada.
rubella Cress. Trans. viii, 22, ♂. Nevada.
mutans Norton, Trans. ii, 236; Catal. 168, ♂. Canada, New Hampshire.
ferrugineipes Cress. Trans. viii, 22, ♀. Colorado.
sectilis Cress. Trans. viii, 22, ♀. Colorado, Nevada.
morosa Cress. Trans. viii, 23, ♂. Colorado.
rubeola Cress. Trans. viii, 23, ♂. Nevada.
mimula Cress. Trans. viii, 23, ♂. Colorado.
semirufa Norton, Trans. ii, 235; Catal. 167, ♀. Colorado.
discrepans Norton, Trans. ii, 235; Catal. 167, ♂. Hudson's Bay Territory.
tricolor Norton, (Allantus), Trans. ii, 236; Catal. 168, ♀. Can., Me., N. H., Col.
semirubra Norton, Trans. ii, 236; Catal. 168, ♂ ♀. Massachusetts.
picecincta Norton, (Allantus), Trans. ii, 236; Catal. 168, ♀. New York.
cogitans Prov. (Allantus), Nat. Can. x, 163; Trans. viii, 43, ♀. Canada.
occidentalis Cress. Trans. viii, 23, ♀. Colorado.
lateraria Cress. Trans. viii, 23, ♀. California.
lineata Prov. Nat. Can. x, 198; Trans. viii, 43, ♀. Can., N. H., Col.
pectoralis Norton, Trans. ii, 237; Catal. 169, ♂. Colorado.
californica Nort. (Macr.), Tr. i, 275; Cat. 137, ♂ ♀. B. Am., N. H., Col. Nev., Cal.
addenda Cress. Trans. viii, 23, ♀. Colorado, Nevada, California.
vittatipes Cress. Trans. viii, 24, ♂. Nevada.
rufopectus Norton, (Allantus), Trans. ii, 237; Cat. 169, ♂ ♀. Can., E. M. & W. St.
mellicoxa Prov. Nat. Can. x, 198, ♀.
rufipes Say; Norton, Trans. ii, 237; Catal. 169, ♀. Labr., Can., E. M. & W. St.
Allantus leucostoma Kirby, Faun. Bor. Am. iv, 256.
concessa Norton, Trans. ii, 238; Catal. 170, ♀. British America.
flavomarginis Nort., (Allantus), Trans. ii, 238; Cat. 170, ♀. N. H., Ct., Col., Nev.
cinctitibiis Norton, Trans. ii, 239; Catal. 171, ♀. Labrador, New Hampshire.
decorata Prov. Nat. Can. x, 200; Trans. viii, 44, ♀. Canada.
fumipennis Norton, Trans. ii, 239; Catal. 171, ♂. Colorado, California.
nimbipennis Norton; Cress. Trans. iv, 155; viii, 44, ♀. Texas.
atroviolacea Norton, (Allantus), Trans. ii, 239; Catal. 171, ♂ ♀. Can., U. S.
var. *cinctula* Norton, Trans. ii, 240; Catal. 172, ♀.
var. *tarda* Norton, Trans. ii, 240; Catal. 172, ♂ ♀.

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attracta Norton, Trans. ii, 240; Catal. 172, ♀. British America.
rubens Cress. Trans. viii, 24, ♂. Nevada.
diluta Cress. Trans. viii, 24, ♀. California.
Edwardsii Cress. Trans. viii, 24, ♀. Nevada, California.
semilutea Norton, Trans. ii, 240; Catal. 172, ♂ ♀. Ct., N. J., Pa., Del.
confusa Norton, Trans. ii, 241; Catal. 173, ♂. Canada, United States.
delta Prov. (Pachyprotasis). Cress. Trans. viii, 44, ♀. Can., N. H., N. Y.
14-punctata Norton, Trans. ii, 241; Catal. 173, ♂ ♀. N. H., Va.
nigrofasciata Esch.; Norton, Trans. ii, 241; Catal. 173. Russian America.
subcœrulea Esch.; Norton, Trans. ii, 242; Catal. 174. Russian America.

LOPHYRUS Latr.

tropicus Norton, Trans. ii, 322; Catal. 176, ♂. Mexico.
cordoviensis Norton, Trans. ii, 323; Catal. 177, ♂. Mexico.
Fabricii Leach; Norton, Trans. ii, 323; Catal. 177, ♀. Georgia.
compar Leach; Norton, Trans. ii, 323; Catal. 177, ♂ ♀. Georgia.
lateralis Cress. Trans. viii, 25, ♀. Georgia.
pinus-rigida Norton, Trans. ii, 323; Catal. 177, ♂ ♀. Massachusetts.
Abbotii Leach; Norton, Trans. ii, 324; Catal. 178, ♂ ♀. Pa., Ga., Ind., Mo.
Akhursti Norton, Trans. ii, 324; Catal. 178, ♀. New Jersey.
abietis Harris; Norton, Trans. ii, 325; Catal. 179, ♂ ♀. Mass., Ct.
Rileyi Cress. Trans. viii, 25, ♀. Florida.
abdominalis Say; Norton, Trans. ii, 328; Catal. 182, ♀. N. Y., "N. W. Terr."
pinetum Norton, Trans. ii, 328; Catal. 182, ♂ ♀. Ohio.
americanus Leach; Norton, Trans. ii, 329; Catal. 183, ♀. Georgia.
Leconteï Fitch; Norton, Trans. ii, 329; Catal. 183, ♂ ♀. N. Y., N. J., Mo.
Edwardsii Norton, Trans. ii, 330; Catal. 184, ♂. California.
insularis Cress. Proc. iv, i; Trans. viii, 44, ♂ ♀. Cuba.
fulviceps Cress. Trans. viii, 25, ♀. Nevada.
fulvus Norton, Trans. iv, 86; viii, 45, ♀. Texas.
suffusus Cress. Trans. viii, 26, ♀. Massachusetts.
melliceps Cress. Trans. viii, 26, ♀. Massachusetts.

LYDA Fabr.

brunnicans Norton, Trans. ii, 333; Catal. 187, ♀. Colorado, Nevada.
discolor Cress. Trans. viii, 26, ♀. Canada, Pennsylvania, Nevada.
verticalis Cress. Trans. viii, 26, ♀. California.
similaris Cress. Trans. viii, 27, ♀. Nevada.
Morrisoni Cress. Trans. viii, 27, ♀. Nevada.
atripes Cress. Trans. viii, 27, ♀. North Carolina.
luteomaculata Cress. Trans. viii, 28, ♀. New Hampshire.
apicalis Westw. Thes. Ent. Oxon. 111, pl. 20, fig. 8; Trans. viii, 45, ♂. N. Am.
tesselata Klug; Norton, Trans. ii, 334; Catal. 188, ♀. Mass., Pa.
abdominalis Norton, Proc. i, 199, ♀.
variegata Norton, Trans. ii, 335; Catal. 189, ♂. Mexico.
bicolorata Norton, Trans. ii, 334; Catal. 188, ♀. New York.
Poppigii Br. & Zadd.; Cress. Trans. viii, 45, ♀. Georgia, North Carolina.
nevadensis Cress. Trans. viii, 28, ♂. Nevada.
montivaga Cress. Trans. viii, 28, ♂. Nevada.
nigripes Cress. Trans. viii, 28, ♂. Nevada.

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rufiventris Cress. Trans. viii, 29, ♂. Nevada.
bucephala Cress. Trans. viii, 29, ♂. California.
terminalis Cress. Trans. viii, 29, ♀. Nevada.
ochrocera Norton, Trans. ii, 332; Catal. 186, ♂. N. H., Mass.
brunniceps Cress. Trans. viii, 29, ♀. New Hampshire.
credita Norton, Trans, ii, 334; Catal. 188, ♂. Mexico.
maculiventris Norton, Trans. ii, 333; Catal. 187, ♂. Mass., Mich.
marginiventris Cress. Trans. viii, 29, ♀. New York.
albomarginata Cress. Trans. viii, 30, ♀. Colorado.
chicoutimiensis Huart, Nat. Can. xi, 149; Trans. viii, 45, ♀. Canada.
circumcincta Klug; Norton, Trans. ii, 342; Catal. 196. Georgia.
nigrita Cress. Trans. viii, 30, ♂. Nevada.
atrata Cress. Trans. viii, 30, ♂. Nevada.
fasciata Norton, Trans. ii, 335; Catal. 189, ♂ ♀. Ct., N. Y., Pa.
plagiata Klug; Norton, Trans. ii, 336; Catal. 190, ♂ ♀. Mid. & South. States.
frontalis Westw. Thes. Ent. Oxon. 110, &c., ♂; Trans. viii, 46, ♀. Mass. "N. A."
amplecta Fab.; Norton, Trans. ii, 342; Catal. 196. Carolina.
insignis Br. & Zadd.; Cress. Trans. viii, 46. Georgia.
canadensis Norton, Trans. ii, 336; Catal. 190, ♂. Canada.
ochreipes Cress. Trans. viii, 30, ♀. New Hampshire.
pullata Cress. Trans. viii, 31, ♀. Missouri.
perplexa Cress. Trans. viii, 31, ♀. Massachusetts.
scripta Say, (Tarpa); Norton, Trans. ii, 339; Catal. 193. N. H., Ark.
pallimacula Norton, Trans. ii, 337; Catal. 191, ♀. Br. Am., E. M. & S. States.
pacifica Norton, Trans. ii, 338; Catal. 192, ♀. California.
quebecensis Prov. Nat. Can. x, 205; Trans. viii, 46, ♀. Can., N. Y.
excavata Norton, Trans. ii, 337; Catal. 191, ♂. Canada, Maine, New York.
fascipennis Cress. Trans. viii, 31, ♀. New Hampshire.
Provancheri Huart, Nat. Can. xi, 148; Trans. viii, 46, ♀. Canada.
semidea Cress. Trans. viii, 31, ♀. New Hampshire.
nigropectus Cress. Trans. viii, 32, ♀. Nevada.
ocreata Say; Norton, Trans. ii, 338; Catal. 192, ♀. Can., E. M. & W. States.
luteicornis Norton, Trans. ii, 339; Catal. 193, ♀. Can., Ct., N. H., Col.
multisignata Norton, Trans. ii, 340; Catal. 194, ♀. Colorado, Nevada.
melliventris Cress. Trans. viii, 32, ♂. Nevada.
rufofasciata Norton, Trans. ii, 340; Catal. 194, ♀. New Hampshire, Connecticut.
rufocincta Cress. Trans. viii, 32, ♂. Colorado.
Burquei Prov. Nat. Can. x, 204; Trans. viii, 47, ♀. Canada.
semicincta Norton, Trans. ii, 341; Catal. 195, ♀. Maine, Virginia.
Rileyi Cress. Trans. viii, 32, ♀. Missouri.
cavifrons Cress.; Norton, Trans. ii, 341; Catal. 195, ♀. Colorado.
inconspicua Norton, Trans. ii, 341; Catal. 195, ♀. Pennsylvania, New York.

CEPHUS Latr.

abbreviatus Say; Norton, Trans. ii, 343; Catal. 197, ♀. Pennsylvania.
heteropterus Norton, Trans. ii, 343; Catal. 197, ♂. N. H., Mass.
rufiventris Cress. Trans. viii, 33, ♀. California.
integer Norton, (Phyllæcus), Trans. ii, 346; Catal. 200, ♂ ♀. Mass., N. Y.
bimaculatus Norton, (Phyllæcus), Trans. ii, 346; Catal. 200, ♂ ♀. Ct.

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4-guttatus Westw. Thes. Ent. Oxon. 111, pl. 20, fig. 11; Trans. viii, 47. Mass.
trimaculatus Say; Norton, (Phyll.), Trans. ii, 345; Cat. 199, ♂ ♀. E. M. & S. St.
bicinctus Prov. (Phyllæcus), Nat. Can. vii, 375; x, 207; Trans. viii, 47, ♀. Can.
abdominalis Cress. Trans. viii, 33, ♀. Nevada.
bifasciatus Cress. Trans. viii, 33, ♀. Colorado.
fasciatus Cress. Trans. viii, 33, ♀. Colorado.
mexicanus Guér.; Norton, Trans. ii, 344; Catal. 198, ♀. Mexico.
clavatus Norton, (Phyllæcus), Trans. ii, 345; Catal. 199, ♀. Nevada, California.
cinctus Norton, Trans. iv, 86; viii, 48, ♂. Colorado.

JANUS Steph.

flaviventris Fitch; Norton, Trans. ii, 344; Catal. 198. New York.

XYELA Dalm.

major Cress. Trans. viii, 34, ♂ ♀. Texas.
ferruginea Say; Norton, Trans. ii, 348; Catal. 202, ♀. Mass., Ark.
infuscata Norton, Trans. ii, 349; Catal. 203, ♂. Massachusetts.
tricolor Norton, Trans. ii, 348; Catal. 202, ♂. Kansas.
ænea Norton, Trans. iv, 86; viii, 48, ♂. Texas.
minor Norton, Trans. ii, 349; Catal. 203, ♀. United States.

Fam. UROCERIDÆ.

ORYSSUS Fabr.

terminalis Newm. Ent. Mag. v, 486. Massachusetts, New York, Pennsylvania.
hæmorrhoidalis Harris; Norton, Trans. ii, 350; Catal. 204, ♀.
occidentalis Cress. Proc. Ent. Soc. 1879, ix; Trans. viii, 48, ♂ ♀. Col., Nev.
mexicanus Cress. Proc. Ent. Soc. 1879, x; Trans. viii, 48, ♀. Mexico.
Sayi Westw. Zool. Jour. v, 440; Trans. viii, 49, ♂ ♀. N. Scotia, Mass., Ind.
maurus Harris; Norton, Trans. ii, 351; Catal. 205, ♀.
affinis Harris; Norton, Trans. ii, 351; Catal. 205, ♂. Massachusetts.

XIPHYDRIA Latr.

albicornis Harris; Norton, Trans. ii, 352; Catal. 206, ♀. Can., E. M. & W. St.
mellipes Harris, Inj. Ins. Flint Edit. 541, ♂.
Provancheri Cress. Trans. viii, 49, ♂ ♀. Can., N. H., Mass.
Xiphidion canadense Prov. Nat. Can. x, 233, ♀.
Walshii Westw. Thes. Ent. Oxon. 113; Trans. viii, 50, ♂. New York.
canadensis Prov. Nat. Can. vii, 373; x, 233; Trans. viii, 49, ♀. Canada.
maculata Say; Norton, Trans. ii, 353; Catal. 207, ♂. Canada.
tibialis Say; Norton, Trans. ii, 353; Catal. 207. Pennsylvania.
basalis Say; Norton, Trans. ii, 354; Catal. 208. Indiana.
abdominalis Say; Norton, Trans. ii, 354; Catal. 208. Pennsylvania.
rufiventris Cress. Trans. viii, 34, ♀. New York.
attenuata Norton, Trans. ii, 354; Catal. 208, ♂; Trans. viii, 50, ♀. E. & M. St.

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UROCERUS Geoffr.

Edwardsii Brullé, (Sirex); Norton, Trans. ii, 356; Catal. 210, ♀. U. States.
Sirex Abaddon Westw. Thes. Ent. Oxon. 115, pl. 21, fig. 7, ♀.
areolatus Cress.; Norton, Trans. ii, 358; Catal. 212, ♀. Colorado, New Mexico.
zonatus Norton, Trans. ii, 357; Catal. 211, ♂. New York, Maryland.
Sirex fulvocinctus Westw. Thes. Ent. Oxon. 114, pl. 21, fig. 1, ♂.
latifasciatus West. (Sirex), Thes. Ent. Ox. 114, pl. 21, fig. 2; Tr. viii, 50, ♂. N. A.
cyaneus Fabr. (Sirex), Nort., Tr. ii, 357; Cat. 211, ♂ ♀. Can., E. M. & W. St., W. T.
Sirex juvencus Kirby, Faun. Bor. Am. iv, 257, ♀.
Sirex duplex Shuckard, Loud. Mag. Nat. Hist. new ser. i, 630, ♂ ♀.
nitidus Harris, Inj. Ins. Flint Edit. 540, ♀.
cæruleus Cress. Trans. viii, 34, ♀. Vancouver's Island.
gracilis Westw. Thes. Ent. Oxon. 114, pl. 21, fig. 4; Trans. viii, 51, ♀. N. Am.
nigricornis Fabr. (Sirex); Norton, Trans. ii, 359; Catal. 213, ♂ ♀. N. Y., Cal.
Sirex morio Westw. Thes. Ent. Oxon. 115, pl. 21, fig. 6, ♀.
Behrensii Cress. Trans. viii, 35, ♀. California.
fulvus Cress. Trans. viii, 35, ♂. Colorado, Utah, Washington Territory.
albicornis Fabr. (Sirex); Norton, Trans. ii, 360; Catal. 214, ♀. U. S., Vanc.
var. *californicus* Norton, Trans. ii, 360; Catal. 214, ♀.
abdominalis Harris; Norton, Trans. ii, 361; Catal. 215, ♂. E. M. & W. States.
flavicornis Fab. (Sirex); Norton, Tr. ii, 362; Cat. 216, ♀. Can., E. M. & W. St.
Sirex bizonatus Steph. Ill. Brit. Ent. Mand. vii, 114, pl. 36, fig. 2.
Cressoni Norton, Trans. ii, 361; Catal. 215, ♀. Mass., N. Y., N. J., Pa.
Sirex dimidiatus Westw. Thes. Ent. Oxon. 115, pl 21, fig. 5, ♀.
tricolor Prov.; Norton, Trans. ii, 362; Catal. 216; Trans. viii, 51, ♂ ♀. Can.
tarsalis Cress. Trans. viii, 52, ♀. Washington Territory.
caudatus Cress.; Norton, Trans. ii, 363; Catal. 217, ♂ ♀. Can., Col., Cala.
Sirex melancholicus Westw. Thes. Ent. Oxon. 116, pl. 21, fig. 8, ♂.
Morrisoni Cress. Trans. viii, 35, ♂ ♀. Colorado, Utah, Washington Territory.

TREMEX Jurine.

columba Fabr. (Sirex); Norton, Trans. ii, 364; Catal. 218, ♂ ♀. Can., U. S.
Sirex cinctus Drury, Exot. Ins. ii, 72, pl. 38, fig. 2.
Sirex pensylvanica DeGeer, Ins. iii, 393, pl. 30, fig. 13.
obsoletus Say, Am. Ent. ii, pl. 32, ♂.
maurus Westw. Thes. Ent. Oxon. 116, pl. 21, fig. 3, ♂.
var. *sericeus* Say; Norton, Trans. ii, 366; Catal. 220, ♀.
Servillei Brullé, Hym. iv, 645, pl. 45, fig. 2, ♀.

TEREDON Norton.

cubensis Cress. (Tremex); Norton, Trans. ii, 366; Catal. 220, ♀. Cuba.
latitarsis Cress. (Tremex); Norton, Trans. ii, 367; Catal. 221, ♂. Cuba.

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Abbreviations used in References.

BEAUV.—Palisot de Beauvois.
BR. & ZADD.—Brischke & Zaddach.
BRULLE, HYM.—Hyménoptères (Suite à Buffon).
CRESS. PROC.—Cresson, Proceedings Entomological Society of Philadelphia.
" TRANS.—Transactions American Entomological Society.
DEGEER, INS.—Mémoires des Insectes.
DRURY, EXOT. INS.—Exotic Insects.
ESCH.—Eschscholtz.
FABR.—Fabricius.
GUER.—Guérin-Méneville.
HARRIS, INJ. INS. FLINT EDIT.—Insects Injurious to Vegetation, Flint's Edition.
HUART, NAT. CAN.—Naturaliste Canadien.
KIRBY, FAUN. BOR. AM.—Fauna Boreali-Americana.
KLUG, BERL. MAG.—Berlin Magazin.
LEACH, ZOOL. MISC.—Zoological Miscellany.
NEWM. ENT. MAG.—Newman, Entomological Magazine.
NORTON, BOST. JOUR.—Boston Journal of Natural History.
" CATAL.—Catalogue of the described Tenthredinidæ and Urocerida of North America, (separate pagination).
" PROC.—Proceedings Entomological Society of Philadelphia.
" PROC. BOST. SOC.—Proceedings Boston Society of Natural History.
" TRANS.—Transactions American Entomological Society.
PATTON, CAN. ENT.—Canadian Entomologist.
PROV. NAT. CAN.—Provancher, Naturaliste Canadien.
SAY, AM. ENT.—American Entomology.
" BOST. JOUR.—Boston Journal of Natural History.
" LONG'S 2D. EXPED.—Long's Second Expedition.
SHUCKARD, LOUD. MAG. NAT. HIST.—Loudon's Magazine of Natural History.
SMITH, N. AM. ENT.—E. A. Smith, North American Entomologist.
STEPH. ILL. BRIT. ENT. MAND.—Stephens, Illustrations of British Entomology, Mandibulata.
ST. FARG.—LePeletier de Saint Fargeau.
" ANN. SOC. ENT. FR.—Annales de la Société Entomologique de France.
" MON. TENTH.—Monographia Tenthredinetarum.
WALSH, PROC.—Proceedings Entomological Society of Philadelphia.
" TRANS. ST. LOUIS ACAD.—Transactions St. Louis Academy of Sciences.
WESTW. THES. ENT. OXON.—Westwood, Thesaurus Entomologicus Oxoniensis.
" ZOOL. JOUR.—Zoological Journal.

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Notes on the species of ASAPHES of Boreal America.

BY GEORGE H. HORN, M. D.

A study of this genus based on the accumulation of material since Leconte's Revision has led me to conclusions hardly expected at first. Starting with the idea that the species should be separated by some characters capable of definition and which could be used as a key, it became evident at once that this was not easily to be done. At a glance in our cabinets it will be seen that certain species are normally black while others are brown, ferruginous or even paler, and while this would make a tolerably good empirical division it is certainly not natural. The absence of the carina at the hind angles of certain forms and with it the absence of the intra-angular incisure is the first character of importance to be observed. In those species in which the color above and beneath is entirely black, the flanks of the prothorax beneath are usually densely but always equally punctured, while in the paler species this part of the body is very unequally punctured, it is usually densely punctured in front and with a large smooth space posteriorly, in one or two species there is no space free of punctures but the punctures are so very sparsely placed as to make a very considerable contrast between the anterior and posterior portion of the flanks. This character separates very nearly those species (with a carina), which are totally black from those which are not so. The form of the prosternal mucro has also a certain value in separating the species. In some it will be noticed that the median line of the prosternum to the tip of the mucro is straight and the bifid mesosternum is also nearly in the same plane with the metasternum the lobes being rather prominent. In others the mucro is flexed behind the coxæ and the mesosternum quite oblique its lobes not prominent. By the use of these characters we avoid the necessity of separating species by the thoracic punctuation, a rather variable and unsafe character.

Dr. Candeze has separated as distinct species some forms in which the inner striæ of the elytra are more or less effaced, but it will be observed that this is a sexual character, and is often seen in the females though not constant in that sex but I have never noticed it in the males.

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The tabular separation based on the above with other less important characters is given below, the numbers indicating a cabinet arrangement based on superficial resemblances.

Hind angles of thorax not carinate, basal margin without incisure. Flanks beneath sparsely punctured.....11. **bilobatus.**
Hind angles carinate, basal incisures more or less distinct.....2.
2.—Flanks of thorax beneath with a large smooth space posteriorly or very much less densely punctured.....3.
Flanks of thorax beneath without smooth space, at most, very little less densely punctured posteriorly.....4.
3.—Carina of hind angles fine and close to the margin, incisures feeble.
Black, elytra luteous.....6. **oregonus.**
Ferruginous brown, elongate.....7. **soccifer.**
Carina well marked and divergent from margin, incisures well marked.
Hind angles divergent. Prosternal mucro horizontal...9. **decoloratus.**
Hind angles not divergent. Mucro flexed.
Third joint of antennæ shorter than the fourth, thorax very sparsely and indistinctly punctured.....8. **indistinctus.**
Third joint of antennæ equal to the fourth, thorax variably but always very distinctly punctured.....10. **memnonius.**
4.—Prosternal mucro horizontal, the mesosternum with its lobes moderately prominent.
Thorax sparsely punctured at middle and but moderately densely punctured at the sides, hind angles not divergent.....3. **morio.**
Thorax closely punctured at middle and very densely at the sides.
Pubescence very short and black. Hind angles somewhat divergent. 4. **dilaticollis.**
Pubescence longer, brownish. Hind angles not divergent. 5. **tumescens.**
Prosternal mucro flexed, the mesosternum oblique its lobes not at all prominent.
Thorax very convex, pubescence long, black, erect.....1. **hirtus.**
Thorax moderately convex, pubescence very short.....2. **carbonatus.**

The notes which follow are intended to be supplementary to the fuller descriptions already given by Drs. Leconte and Candeze, they are however ample for the separation of the species known to us at present.

The synonymy given under *memnonius*, *decoloratus* and *bilobatus*, may be surprising to some students and cause doubts in the minds of others, to both classes I can say that the conjoined material in my own and Dr. Leconte's cabinet is abundant enough to sustain the views here given.

A. hirtus Cand.—Rather slender, black, moderately shining, sparsely clothed with moderately long and more or less erect black hair. Thorax more convex than usual, very coarsely and moderately densely punctured, hind angles carinate and divergent; flanks beneath coarsely and moderately densely

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punctured; prosternal mucro slightly flexed, mesosternum not prominent. Elytra moderately deeply striate, striæ punctured, intervals convex, coarsely punctulate. Body beneath and abdomen moderately coarsely punctate. Length .40—.50 inch; 10—13 mm.

The sexes exhibit the same differences as in the other species but not in so conspicuous a degree. In the male the thorax is distinctly longer than wide, narrowed in front, the sides feebly arcuate and the hind angles more divergent.

The thorax in the female is as broad as long, not narrowed in front, the sides more arcuate and the hind angles less divergent than in the males. The elytra are also a little less deeply striate at middle, but this is not so conspicuous in the specimens before me as in the other black species.

Occurs in California.

A. carbonatus Lec.—Black, moderately shining, sparsely clothed with short black pubescence. Thorax densely punctured, moderately convex, hind angles rather strongly carinate and very little divergent; flanks of thorax beneath densely punctured in front, less densely posteriorly but without smooth space, tip of prosternum flexed. Mesosternum not prominent. Elytra striate, striæ finely punctured, intervals moderately convex and moderately densely punctulate. Length .40—.64 inch; 10—16 mm.

Males.—Thorax less convex, sides less arcuate and more narrowed in front. Elytral striæ equally deep at base and sides.

Females.—Thorax more convex, sides more arcuate scarcely narrower in front, disc somewhat more coarsely punctured. Elytral striæ near the suture often less deep than those at the sides.

With this species I have united *coracinus* Cand., the differences given by that author being merely sexual.

Occurs from Nebraska westward to California and Oregon. Immature specimens are brownish with brown pubescence.

A. morio Lec.—Closely resembling in general appearance the preceding but more robust and of larger size. The thorax is convex rather sparsely punctured on the disc, more densely at the sides, the surface being more shining than in *carbonatus*, the hind angles are similarly carinate but the angles are not at all divergent; beneath the flanks are similarly punctured. The prosternal mucro is straight and smooth, the mesosternum rather prominent. The under side of the body is also less punctured and more shining than *carbonatus*. Length .60—.72 inch; 15—18 mm.

The sexes also exhibit a variation similar to that of *carbonatus* but to a more marked degree, recalling that of *memnonius*.

The punctuation of the thorax is somewhat variable but is never so dense as in *carbonatus* or *dilaticollis*. The form of the prosternum will distinguish this species at all times from the former, while the latter species has a very regularly and densely punctured thorax with

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more arcuate sides and less convex disc. With this species I unite *verna* Cand., the differences being sexual.

Occurs in California, Oregon and Vancouver.

A. dilaticollis Motsch.—Black, feebly shining, sparsely clothed with short black pubescence. Form parallel. Thorax as broad as long, sides arcuate, hind angles divergent, carinate: surface densely and very equally punctured; beneath densely punctured on the flanks without smooth space. Prosternal mucro horizontal, mesosternum moderately prominent. Elytra striate, striæ finely punctured, intervals nearly flat, moderately densely punctulate. Length .54—.66 inch; 14—17 mm.

I have seen four specimens of this species all of which appear to be females. The punctuation of the thorax is even denser and finer than in *coracinus*. The divergent angles will distinguish it from the next species, which also differs in its pubescence.

Occurs in Middle California.

A. tumescens Lec.—Piceous, clothed with brownish hair. Thorax scarcely longer than wide, moderately convex, with punctures moderately densely placed, hind angles not divergent, carinate; flanks of prothorax beneath densely punctured, a little less densely posteriorly; prosternal mucro horizontal, mesosternum moderately prominent. Elytra striate, striæ coarsely punctured near the base, more finely toward the tip, intervals convex, punctulate. Length .44—.56 inch; 11—14 mm.

The two specimens before me by the form of the thorax seem to be females. The thorax has the sides moderately arcuate in front and the disc is slightly broader behind the apex than at base. The whole contour of the species resembles the preceding, but the parallel hind angles and the brownish pubescence seem to warrant its being retained as distinct.

Occurs in California.

A. oregonus Lec.—Piceous, elytra luteous, legs varying from pale to piceous, surface sparsely clothed with yellowish pubescence. Thorax not densely nor coarsely punctured, hind angles slightly divergent and with a fine carina rather close to the lateral margin; flanks of thorax beneath rather coarsely but not densely punctured, with a large smooth space posteriorly; prosternal mucro rather strongly flexed, mesosternum inconspicuous. Elytra striate, striæ punctured, intervals flat or feebly convex and punctulate. Length .32—.40 inch; 8—10 mm.

Male.—Thorax distinctly longer than wide, sides nearly straight and gradually convergent in front.

Female.—Thorax as wide as long, sides rather strongly arcuate in front.

The differences in form between the two sexes are very sharply marked, the female resembling in outline *Corymbites rotundicollis*, while the male has the outline of *Sericosomus fusiformis*.

Occurs in Oregon and Vancouver.

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A. soccifer Lec.—Form elongate, pale brownish, clothed with short pale pubescence, body beneath and legs paler than the upper surface. Thorax feebly convex rather sparsely punctate, hind angles slightly divergent, the carina fine and close to the margin; flanks of prothorax beneath not densely punctured with a smooth space posteriorly; prosternal mucro flexed, mesosternum inconspicuous. Elytra feebly striate, striæ punctured, intervals feebly convex, punctulate. Length .54 inch; 14 mm.

Of this species I have seen but two males, the thorax is longer than wide, narrowed in front, the sides very nearly straight.

From its elongate form this insect bears a closer resemblance to *Athous* (especially *Ath. ferruginosus*), than to the present genus, the resemblance is still further increased by the longer antennæ.

Occurs in New Mexico.

A. indistinctus Lec.—Piceous moderately shining, sparsely clothed with greyish pubescence. Thorax moderately convex, and shining, very sparsely and finely punctulate, hind angles slightly divergent and with a moderate carina parallel with the margin; flanks not densely punctate, a smooth space posteriorly; mucro flexed, mesosternum not conspicuous. Elytra striate, striæ punctured, intervals moderately convex, sparsely punctulate. Length .44 inch; 11 mm.

The two specimens before me are males. The thorax is longer than wide, slightly narrowed in front, sides very feebly arcuate.

This species might be mistaken for a variety of *decoloratus*, but the thorax is very much less evidently punctured and the prosternal mucro flexed. It bears no resemblance whatever to *memnonius* near which it is placed in the table, except in the technical characters there made use of.

Occurs in Georgia and South Carolina.

A. decoloratus Say.—Piceous black, shining, surface often with æneous tinge, elytra often pale, legs pale rufous; surface sparsely clothed with greyish pubescence. Thorax moderately, not densely punctured, hind angles divergent, carinate, the carina diverging from the margin; flanks moderately densely punctured in front, a large smooth space posteriorly. Elytra moderately deeply striate, striæ punctured, intervals convex and punctulate. The prosternal mucro is horizontal, the mesosternum is however not prominent. Length .36—.60 inch; 9—15 mm.

Male.—Thorax very evidently longer than wide, sides feebly arcuate, disc less convex and usually less punctured. Form generally more slender and less convex.

Female.—Thorax very little if any longer than wide, disc more convex and punctured than in the male and with the sides more arcuate. General form stouter and more convex.

The above short description suffices to define this species as a whole. The sexes vary in form and are parallel in their differences with those of *Corymbites cylindriformis*.

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Under the name *decoloratus* I have placed as synonyms *æreus* Mels. and *hemipodus* Say, the former being merely the usual form of female, the latter a larger development of the same sex. The specimen of *hemipodus* described by Leconte (Revis. Elat. p. 449), is an abnormal specimen, not only in the thoracic sculpture but also in the vague elytral impressions.

This species occurs everywhere in the Atlantic region as far west as Missouri, but I have never seen any from the Gulf States.

A. memnonius Herbst.—This species presents a range of variation in form parallel with that of *bilobatus*. Its general characters are: Color piceous to pale brown, legs always paler, surface sparsely clothed with brownish pubescence. Thorax moderately densely punctured but variable in the sexes, the disc more convex in the female, hind angles not divergent, rather strongly carinate, the carina divergent from the margin; beneath rather coarsely punctured but with a smooth space of variable extent posteriorly; prosternal mucro flexed at tip, mesosternum not prominent. Elytra moderately deeply striate, the striæ punctured, intervals moderately convex, punctulate.

Males.—Thorax less convex more sparsely punctured, sides nearly straight, form nearly square. Elytral striæ equally deep on the disc and sides.

Females.—Thorax convex, moderately densely punctured, sides usually moderately arcuate. Elytral striæ often less deep near the suture.

Under the name *memnonius* I unite in addition to those already placed there, *baridius* Say, and *brevicollis* Cand., the former being the female and the latter merely a less developed form of the species.

Occurs from Canada to Georgia and westward to Colorado. It varies in size from .50—1.02 inch; 13—26 mm.

A. bilobatus Say.—Under this name are included those forms in which the hind angles of the thorax are not carinate and the intra-angular incisure of the basal margin is absent. The form, especially in the thorax, varies in the sexes and has given rise to the synonymy noticed further on. The males are more slender, the thorax longer than wide, the sides straight and usually convergent in front. In the females the thorax is nearly square, sometimes longer than wider, the sides more or less arcuate and rarely slightly sinuate behind. The convexity of the thorax also varies sexually being more convex in the female but this difference is by no means so obvious as the form. The punctuation is moderately coarse but not very dense but varies in both respects. The elytra are striate, the striæ coarsely punctured near the base becoming finer toward the tip, the intervals are convex, irregularly biseriately punctulate. In most of the females the striæ nearest the suture are much less deep than in the males. The flanks of the prothorax are coarsely punctured but shining, the punctures being scarcely less dense posteriorly than in front. The prosternal mucro is flexed at tip, the mesosternum not prominent. The color varies from rufo-testaceous to pale brown and the surface is sparsely clothed with pale brownish pubescence. Length .50—.64 inch; 13—16 mm.

It is not possible to define varieties accurately, but the following notes may render intelligible some of the described forms.

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Bilobatus Say, ♀.—Sides of thorax feebly arcuate in front, parallel posteriorly. *A. tener* Lec. is the ♂, *consentaneus* Lec. and *planatus* Lec. are ♀ and not separable.

Melanophthalmus Mels., ♀.—Sides of thorax more decidedly arcuate and slightly sinuate posteriorly. These specimens recall somewhat the form of *Corymbites rupestris*.

Cavifrons Mels., is described from a male less mature, of paler color with pubescence removed and therefore apparently more shining.

Occurs from Canada to Georgia.

Synonymy and Bibliography.

A. hirtus Cand. Mem. Belg. xvii, 1865, p. 54.

A. carbonatus Lec. Proc. Acad. 1860, p. 320; Cand. Mon. iv, p. 214, pl, 3, fig. 2.
coracinus Cand. loc. cit. p. 214.

A. morio Lec. Trans. Am. Philos. Soc. x, p. 450; Cand. loc. cit. p. 213.
verna Cand. loc. cit. p. 212.

A. dilaticollis Mots. Bull. Mosc. 1859, iv, p. 368.

A. tumescens Lec. Proc. Acad. 1861, p. 348.

A. oregonus Lec. loc. cit. p. 348.

A. seccifer Lec. U. S. Surveys 1876, (Lt. Wheeler), App. H, 10, p. 516.

A. indistinctus Lec. Trans. Am. Philos. Soc. x, p. 451.

A. decoloratus Say, (*Elater*), Trans. Am. Phil. Soc. vi, p. 180; Lec. loc. cit. p. 451; Cand. Mon. iv, p. 212.
hemipodus ♀ Say, Ann. Lyc. i, p. 254; Lec. loc. cit. p. 449; Cand. loc. cit. p. 210.
corporosus ♀ Germ. (*Diacanthus*), Zeitschr. iv, p. 72.
æreus ♀ Mels. (*Athous*), Proc. Acad. ii, p. 156; Lec. loc. cit. p. 450; Cand. loc. cit. 215.
æneolus ♂ Mels. loc. cit.

A. memnonius Hbst. (*Elater*), Kaefer x, p. 29, pl. 160, fig. 10; Lec. loc. cit. p. 450; Cand. loc. cit. p. 211, pl. 3, fig. 1.
baridius Say, Trans. Am. Phil. Soc. vi, p. 176.
Thomasi Germ. (*Hemicrepidius*), Zeitschr. i, 1839, p. 213.
ruficornis Kby. Fauna Bor. Am. p. 146.
brevicollis Cand. Mon. iv, p. 212.

A. bilobatus Say, (*Elater*), Trans. Am. Phil. Soc. vi, p. 164; Lec. loc. cit. p. 452; Cand. loc. cit. p. 222.
melanophthalmus ♀ Mels. (*Athous*), Proc. Acad. ii, p. 154; Lec. loc. cit. p. 451; Cand. loc. cit. p. 221.
cavifrons ♂ Mels. loc. cit. p. 154; Lec. loc. cit. p. 453; Cand. loc. cit. p. 223.
tener Lec. loc. cit. p. 452.
consentaneus ♀ Lec. loc. cit. p. 452.
planatus ♀ Lec. loc. cit. p. 453.

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Synopsis of the DASCYLLIDÆ of the United States.

BY GEORGE H. HORN, M. D.

Since the publication of the synopsis of a portion of this family by Dr. Leconte, (Proc. Acad. 1853, pp. 350—357), no attention had been given it until the appearance of the "Classification" (pp. 177—182), in which the genera only are considered. This may be accounted for by the very uninteresting nature of the greater number of the smaller forms and the difficulty in determining the precise limits of species.

It has been more especially the object of the present essay to deal with the species, the genera being already sufficiently well defined in the books. The systematic arrangement of the tribes and genera here adopted, is practically that proposed by Dr. Leconte with some minor differences in the tables, having for their object either the introduction of new genera or for the illustration of certain lines of affinity which are mentioned in their proper places.

The characters of the family have already been fully made known in general works and it is not necessary to repeat them here. It is necessary to add to the generalities the presence of bifid claws in the tribe Eubriini and the presence of membranous appendages to the claws of *Placonycha*.

That there exists a very close relationship between this family and the Rhipiceridæ must be admitted, the only character which seems to separate them is found in the prominent middle coxæ of the Rhipiceridæ, and if we admit the genus *Brachypsectra* Lec. (Trans. Am. Ent. Soc. 1874, p. 55), this character also fails as neither the anterior nor middle coxæ are prominent, nor is there an anterior trochantin as in all Rhipiceridæ. This need not concern us here as a further study of the genus will place it nearer the true Elateridæ.

The absence of an onychium is by no means constant in the present family and that organ is as well developed in *Stenocolus* Lec. (Lichas Westw.), as in the majority of Rhipiceridæ. The form of the head and especially that of the mandibles in *Stenocolus*, *Dascyllus* and *Anorus*, strikingly resemble those of *Sandalus*, etc.

While the affinities of the genera in one portion of the family are in one direction there is a certain resemblance shown between the

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Eubriini and the Parinidæ in the form of the tarsi. This affinity would be rendered still more striking were the observations of Mr. Crotch confirmed, that the larva of *Placonycha Edwardsii* resembles that of *Helichus* or of *Psephenus*.

In another direction there seems to be a relationship existing between the Macropogonini and *Cerophytum*, an aberrant Elateride.

The Dascyllidæ of the Basin of Leman have been made a study by Henri Tournier, (Association Zoologique du Leman, Année 1867, Geneva 1868), the result being an extremely acceptable pamphlet in which the descriptions are all that could be desired and the plates very clearly drawn. A resumé of the more recent papers on the family is given and an arrangement of the genera adopted not differing essentially from that proposed by Lacordaire.

The family may be divided into two sub-families, which seem to be as natural as they are convenient for the study of the subordinate groups, in the following manner:

Anterior coxæ with large trochantin.....DASCYLLIDÆ.
Anterior coxæ without trochantin.....HELODIDÆ.

Sub-Family I.—DASCYLLIDÆ.

The anterior coxæ are transverse, rarely more prominent than the prosternal process which moderately separates them. The trochantin is large and very distinct. The mandibles are always more evident than in the second sub-family. The tibiæ are never bicarinate externally and the spurs comparatively small. The claws are simple or feebly dilated at base, pectinate in *Odontonyx*.

Two tribes are formed by the genera in our fauna distinguished in the following manner:

Epistoma prolonged, concealing the labrum in great part and the mandibles, posterior coxæ narrowly separated.....MACROPOGONINI.
Epistoma short, labrum and mandibles visible, posterior coxæ contiguous, rarely slightly separated.....DASCYLLINI.

The trochanters of the anterior and middle legs are elongate in the first tribe, short in the second.

Tribe I.—*Macropogonini.*

Head free, slightly deflexed, received in the thorax as far as the eyes, clypeal suture obliterated, front slightly prolonged in great part concealing the labrum and mandibles in repose. Prosternum moderately separating the coxæ, usually meeting the mesosternum, the anterior coxæ oval not more prominent than the prosternum and with large trochantin. Mesosternum separating the coxæ, horizontal or

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oblique (*Allopogon*). Metasternal epimera concealed. Posterior coxæ very narrow and feebly dilated within, slightly separated at middle. Trochanters of anterior and middle legs moderately long. Onychium wanting.

This tribe differs from the Dascyllini which follow by the slightly prolonged epistoma concealing the labrum and mandibles and the slightly separated posterior coxæ.

The genera which occur in our fauna are as follows:

Prosternum prolonged meeting the mesosternum and limited on each side in front with an elevated line divergent anteriorly.
Antennæ slender, elongate, joints 2—3—4 very short, together not longer than the fifth.....**Macropogon.**
Antennæ subserrate, joints 2—3 only, short, together equal to the fourth.
Eurypogon.
Prosternum not prolonged nor meeting the mesosternum, in front convex without raised lines.
Antennæ serrate, joint two short, third a little longer and but little shorter than the fourth.....**Allopogon.**

The genera of this tribe seem to have a certain relationship with the Eucnemidæ through *Cerophytum*. *Allopogon* presents characters somewhat at variance with those assigned the tribe by Dr. Leconte, (Classification p. 178). The definition has been based on other characters as will be seen above.

MACROPOGON Motsch.

Head slightly deflexed, inserted in the thorax as far as the eyes which are moderately prominent and transversely oval. Antennæ slender, longer than half the body, joints 2—3—4 short and subequal. Front prolonged beyond the insertion of the antennæ concealing in great part or entirely the labrum and mandibles. Labrum short, transverse. Mandibles arcuate. Mentum transverse, arcuate in front, ligula not prominent. Labial palpi short, last joint triangular, Maxillary palpi moderately long, second and fourth joints moderately elongate and equal, the latter elongate triangular. Prosternum in front of coxæ moderately long, carinate on each side, posteriorly slightly prolonged and meeting the mesosternum, coxæ not more prominent than the prosternum, trochantins large. Mesosternum horizontal, moderately protuberant and with a groove on the lower face. Metasternum moderately long, body winged. Posterior coxal plates narrow scarcely dilated within, separated on the median line. Abdomen with first segment short, 2—3—4 equal, fifth longer. Legs moderate, tibiæ with small spurs. Tarsi slender, first joint as long as the next two together, fourth rather small, joints 2—3—4 lobed beneath, the lobe

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of the last, longer. Claws slightly dilated at base. Trochanters of anterior and middle legs moderately long.

The species known to me are separated in the following manner:

Joints 2—3—4 of the antennæ very short, equal, together not as long as the fifth which is longer than the sixth. (Pl. I, fig. 1 b.)
Thorax nearly square. ..... **testaceipennis.**

Joints 2—3—4 of the antennæ short not moniliform, but progressively longer, together nearly equal to the fifth which is longer than the sixth. (Pl. I, fig. 1.)
Thorax nearly as broad at base as the elytra the sides decidedly divergent..... **piceus.**

Joints 2—3—4 of antennæ submoniliform and nearly equal, together nearly equal to the fifth which is not longer than the sixth. (Pl. I, fig. 1 c.)
Thorax a little broader at base than apex. Antennæ and legs ferruginous..... **rufipes.**

M. testaceipennis Motsch.—Form elongate, black, elytra luteous, suture and margin posteriorly narrowly black, sparsely clothed with short semi-erect yellow hair. Head punctate. Antennæ slender, piceous, four-fifths the length of body, joints 2—3—4 moniliform, together a little longer than half the fifth which is a little longer than the sixth. Thorax nearly square slightly broader at base, disc moderately convex densely punctured and with the oblique impressions not evident. Elytra oblong nearly parallel, with rows of moderate punctures which continue to tip but become somewhat finer, intervals transversely wrinkled and with a row of fine punctures. Body beneath black, not densely punctate. Legs black. Length .26 inch; 6.5 mm.

Three specimens are before me which agree entirely in color, the body being black, the elytra reddish-yellow or luteous with the suture and apical margin narrowly black. This color may not be constant but the structure of the antennæ will distinguish it from either of the following.

Occurs in the Mariposa District of California, and is rare.

M. piceus Lec.—Resembles the preceding and differs as follows: Color entirely piceous, sparsely clothed with brownish hair. Antennæ with joints 2—3—4 small but not moniliform, progressively longer, together nearly equal to the fifth which is longer than the sixth. Thorax nearly as broad at base as the elytra, narrowed in front, hind angles subacute. Elytra obsoletely striate, striæ moderately punctured, intervals punctulate very sparsely. Length .30 inch; 7.5 mm.

Two specimens from Oregon, two from Montana. One of the former has the humeri pale.

M. rufipes n. sp.—Oblong, piceous, moderately shining, sparsely clothed with short, semi-erect brownish hair, legs and antennæ rufous. Head coarsely punctate. Antennæ slender, three-fourths the length of body, joints 2—3—4 submoniliform, together nearly equal to the fifth which is not longer than the sixth. Thorax trapezoidal, a little broader at base than long and narrowed in front, sides nearly straight, disc moderately convex, coarsely and moderately

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densely punctured, middle line slightly smoother, a vague oblique impression behind the middle. Elytra a little wider than the thorax, oblong parallel, narrowed at apical third, disc moderately convex and with rows of punctures coarse at base gradually finer and more confused toward the tip, intervals with a row of finer punctures. Body beneath more shining than above, moderately densely punctate. Length .22 inch; 5.5 mm.

Occurs in the White Mountains, New Hampshire, (Austin), and in Illinois, (Ulke).

EURYPOGON Motsch.

This genus agrees in all respects with *Macropogon* except in the structure of the antennæ. The second joint is small oval, third longer, the two together longer than the fourth, joints 4—11 slender, subequal.

Two species are known, distinguished as follows:

Punctures of elytra coarse, intervals less wide than the punctures.....**niger.**
Punctures fine, intervals broader.....**californicus.**

E. niger Mels.—Oblong, black, shining, sparsely pubescent. Head very sparsely punctate. Thorax one-half broader than long, slightly broader at base, sides straight, disc moderately convex, sparsely coarsely punctate and with traces of the oblique impressions posteriorly. Elytra a little wider than the thorax, oblong parallel, with rows of moderately coarse punctures closely placed, intervals with a row of fine punctures, surface with semi-erect short black hair. Body beneath black, shining, sparsely punctate, legs piceous. Length .16—.18 inch; 4—4.5 mm.

Occurs from Pennsylvania to Kansas.

E. californicus n. sp.—Oblong, piceous, moderately shining, sparsely pubescent. Head coarsely sparsely punctate. Thorax very nearly twice as wide at base as long, narrower at apex, sides nearly straight, disc moderately convex with broad vague depressions posteriorly, surface sparsely coarsely punctate. Elytra a little wider than the thorax, oblong parallel, gradually narrowing at apical third, surface with rows of moderately fine punctures not closely placed, the intervals flat, much broader than the punctures and with a single row of finer punctures, sparsely clothed with semi-erect, short, brownish hair. Body beneath piceous, sparsely punctate. Legs and antennæ brownish. Length .18 inch; 4.5 mm.

Distinct from *niger* by the finer elytral sculpture and its more elongate form.

One specimen from the Geysers, California, given to Dr. Leconte by Mr. C. Bolter.

It is probable that the discovery of other species will show the necessity of uniting this genus with *Macropogon*.

ALLOPOGON n. g.

Form and general appearance of *Macropogon* differing as follows:

Antennæ serrate, not longer than half the body, first joint cylindric-conic, rather short, second short broader than long, third one-half

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longer than the second, conical slightly flattened, joints 4—10 triangular as broad as long, joint eleven oval. Clypeus rounded in front, without suture, concealing the labrum and mandibles. Mouth parts as in *Macropogon*. Prosternum slightly prominent at tip but not received by the mesosternum. Tarsi shorter than in *Macropogon* but similarly lobed. Claws simple.

A. villosus n. sp.—Oblong, brownish piceous (but variable), sparsely clothed with long brown erect hair. Head densely punctured. Thorax a little broader than long, slightly narrowed in front, apex truncate, base and sides feebly arcuate, disc moderately convex, coarsely and densely punctured. Elytra broader at base than the thorax, sides slightly converging posteriorly, more narrowed at apical fourth, disc moderately convex, striate, striæ coarsely and closely punctured, intervals very narrow. Body beneath paler than above, coarsely but not densely punctured. Length .24 inch; 6 mm.

The color is variable, my specimen is piceous with the head, thorax and under surface somewhat paler, one in Mr. Ulke's cabinet has the head and thorax ferruginous.

Occurs in Middle California, Mariposa.

While the form of this insect and most of its characters place it near *Macropogon* and *Dasypogon*, it differs essentially in the structure of the antennæ and the want of articulation between the pro- and mesosternum.

Tribe II.—*Dascyllini.*

Mandibles and labrum at least moderately prominent, the latter not retractile. Clypeal suture usually obliterated. Trochanters of anterior and middle legs normal in size not elongate.

These characters separate the present from the preceding tribe. The posterior coxæ are contiguous in *Dascyllus*, *Anorus* and *Aræopus*, distinctly separated in *Anchytarsus*, and merely slightly contiguous in the others.

In geographical distribution we find *Odontonyx* and *Anchytarsus* represented each by one species in the Atlantic region, the other genera are peculiar to the Pacific fauna and have one species each, excepting *Dascyllus* with two.

The following table will enable the genera to be recognized:

Mandibles prominent, acutely margined above, rectangularly flexed at tip, head not retracted. Thorax acutely margined.
Tarsi simple, slender..... .....**Stenocolus.**
Tarsi lobed beneath.
Anterior coxæ separated by the prosternum and but very little more prominent than it.....**Dascyllus.**
Anterior coxæ prominent and contiguous. .....**Anorus.**

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Mandibles not prominent, arcuate at tip, not acutely margined above, head strongly deflexed. Tarsi slender.

Claws pectinate. Thorax acutely margined.....**Odontonyx.**

Claws simple. Thorax not acutely margined.

Antennæ slender, middle coxæ not more widely separated than the anterior, thorax obtusely margined, prosternum moderately long before the coxæ.....**Anchytarsus.**

Antennæ serrate, (pectinate ♂), moderately long, middle coxæ twice as widely separated as the anterior, margin of thorax very obtusely rounded, prosternum short in front of the coxæ.....**Anchycteis.**

Antennæ serrate, very little longer than head and thorax, middle coxæ and thorax as in *Anchycteis*, prosternum short, vertical in front of the coxæ.....**Aræopus.**

Of the above genera *Stenocolus* alone has an onychium. The anterior coxæ are moderately separated in the first two alone, the tip of the prosternum being also more prolonged. The first four genera have the thorax acutely margined, in the others the margin is either obtuse or very rounded. In *Anchytarsus* and *Anchycteis* the last joint of the maxillary palpi is triangular, in *Aræopus* moderately elongate, flattened and truncate.

Lichas Westw. is synonymous with *Stenocolus*, both appear to have been published at nearly the same time, and as *Lichas* has already been used in another department of Zoology, there is a reason for retaining our own generic name apart from its very little earlier date.

STENOCOLUS Lec.

Head moderately deflexed not retracted, frontal suture distinct, clypeus partly membranous in front. Labrum transverse, rounded in front. Mandibles prominent, suddenly arcuate at tip, upper side acutely carinate. Mentum transverse, semicircular in front, ligula moderately prominent, emarginate, lobes rounded, the terminal joint of the palpi feebly triangular. Last joint of maxillary palpi elongate, obliquely truncate at tip. Eyes moderately prominent, rounded, partly concealed by the angles of the thorax. Antennæ as long as half the body, serrate, first joint conical, slightly arcuate, second small, rounded, 3—9 moderately elongate, (10—11 are wanting). Prosternum long before the coxæ, and moderately widely separating them, prolonged obtusely and meeting an emargination of the mesosternum. Anterior coxæ oval, not more prominent than the prosternum, with a large trochantin. Mesosternum oblique, excavate in front. Metasternum moderately long, body winged, episterna wide, epimeron very small. Posterior coxæ moderately dilated within and slightly separated. Abdomen with segments 1—4 nearly equal, fifth longer. Legs moder-

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ate, tibiæ with short spurs. Tarsi slender, not lobed nor dilated, first joint a little longer than either of the next three, last joint elongate, with simple claws and a bisetose onychium.

The above description is made from a mutilated specimen in the cabinet of Dr. Leconte, with the assistance of his original description which was made from a more perfect example. I have also had a specimen of *Lichas funebris* Westw., before me and by a comparison of the characters of *Stenocolus* Lec., find the two entirely congeneric.

S. scutellaris Lec.—Body elongate, narrowed at each end, sides parallel at the middle, piceous, covered with very short, depressed, dirt colored (cinereous), pubescence. Antennæ black, strongly serrate in the male, slightly serrate in the female. Thorax nearly three times as wide as the head, nearly twice as wide as long, strongly narrowed in front, sides at the middle almost angulated, then slightly concave (sinuate), to the posterior angles which are acute; base bisinuate; surface finely punctured, broadly concave along the margin behind the middle and broadly transversely impressed at base. Scutellum round, covered with dense white hair. Elytra scabrous with shallow punctures, spaces between the punctures finely punctulate; the elevated lines which may be traced in allied genera are slightly visible. Body beneath more densely pruinose with short cinereous hair. Length .55—.87 inch; 14—22 mm. (Pl. I, fig. 2).

I copy above the description given by Dr. Leconte. I would add that the segments of the abdomen have on each side a smooth callus. In *L. funebris* these callosities are replaced by small foveæ. The form of the present species is very nearly that of *L. funebris*.

Two specimens, Sacramento, California.

DASCYLLUS Latr.

Mandibles prominent, rather suddenly arcuate at tip, the upper edge acute, tip acute. Labrum prominent. Frontal suture distinct. Eyes transversely oval, entire. Antennæ longer than the head and thorax, serrate. Terminal joint of both palpi flattened oval, subtruncate at tip. Head slightly deflexed, not retractile. Prosternum moderately long in front of the coxæ, prolonged between and moderately separating them extending posteriorly to meet the mesosternum. Anterior coxæ transverse, not more prominent than the prolongation of the prosternum, trochantin large. Mesosternum oblique, deeply grooved its entire length. Middle coxæ oval, slightly angulate externally, without trochantin. Metasternum moderately long, episterna wide, narrower posteriorly, epimera very small. Posterior coxæ widely but gradually dilated within. Legs moderate, tibial spurs on all the feet. Tarsi dilated but less so in the female, the joints more or less cordiform, 2—3—4 lobed beneath, in the latter the lobe is deeply

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divided. Claws simple, feebly angulated near the base, divaricate. Onychium entirely wanting. Abdomen of five nearly equal segments in both sexes, the terminal of the male slightly longer.

The above characters supplement those already given in the books. The body is oblong parallel, pubescent and winged, although the wings in the female are less developed than in the male and probably unsuitable for flight.

Two species occur both from the Pacific region, distinguished as follows:

Pubescence above greyish, on the elytra with two irregular darker transverse bands. Third joint of antennæ not longer than the fourth.....**Davidsoni.**
Pubescence plumbeous, uniform. Third joint of antennæ decidedly longer than the fourth.....**plumbeus.**

D. melanophthalmus Guér., should be stricken from our lists, it is a native of Santo Domingo.

D. Davidsoni Lec.—Form oblong parallel, piceo-testaceous or brownish, moderately densely cinereo-pubescent, on the elytra two transverse, sinuous, dentate bands of darker pubescence. Head densely punctulate. Antennæ a little longer than half the body, third joint very little longer than the fourth. Thorax twice as wide as long, narrowed in front, apex truncate, base bisinuate, sides arcuate, margin very narrowly depressed, surface densely punctulate. Elytra striate, striæ less impressed at base, moderately punctured, intervals alternately slightly broader and more convex, finely punctulate. Body beneath moderately densely punctulate and pubescent. Length .40—.52 inch; 10—13 mm.

The males have the last ventral prolonged in an oval manner at middle and sinuate each side; near the base is a vague transverse impression. The female of *Davidsoni* is unknown to us.

Occurs in California, in the Upper Sacramento valley.

D. plumbeus n. sp.—Form oblong parallel, piceous nearly black, sparsely clothed with fine plumbeous pubescence. Head densely punctured. Thorax nearly twice as wide as long, slightly narrower in front, sides moderately arcuate and feebly explanate, surface densely punctured. Elytra very little wider than the thorax, parallel, narrowed at apical fourth, surface not striate but with rows of coarse deeply impressed punctures which are often longitudinally confluent, intervals moderately densely punctulate. Body beneath moderately densely punctulate and clothed with fine plumbeous pubescence. Length ♂ .40—.54 inch; 10—13.5 mm; ♀ .80 inch; 20 mm.

The female is a larger and more robust form with much less evident elytral sculpture, the punctures being much finer. The disc of the elytra has however five vaguely elevated lines between which the punctuation is somewhat confused. The last ventral is but little longer than the fourth and subtruncate at middle. The elytral sculpture of the males primarily distinguishes this species from *Davidsoni*

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Lec., while the pubescence of the latter is not uniform, but on the elytra two transverse sinuous bands of darker color are very evident in well preserved specimens. In the present species the third joint of the antennæ is very nearly as long as the fourth and fifth together, while in *Davidsoni* it is but little longer than the fourth. The color of the tegument is also different, that of the present species nearly black, while in *Davidsoni* it is usually brownish testaceous, rarely piceous.

My specimens were collected in the Mariposa district of California, by Mr. Alphonse Thevenet.

ANORUS Lec.

Form elongate, linear. Head nearly horizontal. Eyes round, moderately prominent. Antennæ slender, subserrate. Mandibles prominent, tip acute and suddenly arcuate, behind the tip obtusely dentate, upper edge acute. Frontal suture distinctly impressed, labrum short transverse. Mentum transverse, narrower in front, ligula membranous with two moderately long appendages at tip, labial palpi slender, last joint longer than the preceding. Maxillary palpi longer but similar. Prosternum moderately long in front of the coxæ but not prolonged between them. Anterior coxæ conical, prominent and contiguous with a large trochantin. Middle coxæ oval, moderately prominent, narrowly separated by the nearly horizontal mesosternum; mesosternal side pieces nearly equal. Metasternal episterna moderate in width, parallel with small epimeron. Posterior coxæ contiguous, moderately dilated internally. Legs slender, tibiæ with spurs. Tarsi slender, first joint as long as the next three, third with a short lobe beneath, fourth with a deeply divided long lobe. Claws slender, slightly thickened at base, divaricate, and without onychium between them. Abdomen of five nearly equal segments. Body winged.

The only foreign genus with which this appears to have any affinity is *Therius*, from which it differs in the form of the mandibles, palpi and tarsi.

One species occurs in California.

A. piceus Lec.—Elongate, parallel, piceous or testaceous, finely cinereo-pubescent, moderately shining. Head moderately densely punctulate. Thorax a little more than twice as wide as long, apex truncate, base bisinuate, sides arcuately narrowing to the front, hind angles rectangular, lateral margin acute but not explanate, apical margin fimbriate, disc moderately convex not very densely punctate. Elytra a little wider than the thorax, parallel, narrowed at apical fourth, surface substriate, vaguely seriately punctate, intervals slightly convex, punctulate. Body beneath more shining, sparsely punctulate. Length .33—.44 inch; 8—11 mm. (Pl. I, fig. 3).

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Occurs from San Diego to Owen's Valley, California, and flies in the early evening.

ODONTONYX Guér.

Head vertical, retracted, resting in repose against the prosternum which is flattened to the front, frontal suture absent. Eyes round, moderately prominent, partly concealed by the angles of the thorax. Antennæ feebly serrate, second joint small. Labrum transverse, arcuate in front, partly concealing the mandibles which are robust, not prominent nor acutely margined above. Mentum transverse, narrowed in front, ligula prominent with four slender ciliate lobes. Maxillary palpi longer than the labial, both with the terminal joint securiform. Prosternum vertical in front, prolonged between the coxæ, terminating in a point meeting the mesosternum. Anterior coxæ conical and more prominent than the prosternum, with large trochantin. Mesosternum moderately separating the coxæ, arcuate and sulcate. Metasternum moderately long, side pieces wide, the epimera small. Posterior coxæ gradually dilated within, very narrowly separated. Abdominal segments nearly equal. Legs moderate, anterior and middle tibiæ slightly compressed, tibial spurs distinct but small. Tarsi slender. Claws pectinate. Onychium wanting. (Pl. I, fig. 13).

The form of the claws is unique in the family.

O. trivittis Germ.—Oblong oval, parallel at middle, piceous pubescent. Head punctate. Thorax a little more than twice as wide as long, arcuately narrowed to the apex, base bisinuate, sides acutely margined, disc convex, finely punctured, color reddish-yellow with two large black spaces, the pubescence the color of the surface. Scutellum yellow. Elytra very little wider than the thorax, substriate, striæ punctured, intervals densely punctate-scabrous, surface clothed with brownish hair with cinereous vittæ. Body beneath and legs black, densely finely punctulate, clothed with short brownish hair. Length .32—.36 inch; 8—9 mm.

Occurs in the Middle States.

ANCHYTARSUS Guér.

Head deflexed but not retracted against the prosternum. Antennæ slender, as long as half the body. Mouth as in *Odontonyx*. Prosternum moderately long in front of the coxæ, horizontal, prolonged between them and slightly extending posteriorly, coxæ oval, more prominent than the prosternum, trochantin large. Mesosternum narrowly separating the middle coxæ, notched at its anterior border, the coxæ with distinct trochantin. Metasternum moderate, side pieces moderately wide, epimera small. Posterior coxæ moderately dilated within, separated by a narrow intercoxal process. Segments of abdomen equal, fifth a little longer. Legs moderate, tibiæ

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with small spurs. Tarsi slender, simple without onychium, claws simple. The characters given in the table separate this genus from its closest allies.

A. bicolor Mels.—Oblong oval, piceous, moderately shining, sparsely pubescent. Head very sparsely finely punctate. Antennæ piceous, two basal joints pale. Thorax twice as wide as long, sides arcuately narrowed to the front, margin obtuse, base bisinuate, disc convex, very sparsely finely punctulate. Elytra not wider at base than the thorax, oblong oval, slightly broader behind the middle, surface substriate, striæ obsoletely punctured, intervals finely punctulate. Body beneath very sparsely finely punctulate. Legs piceous, femora paler. Length .20—.24 inch; 5—6 mm.

Occurs from New York to Georgia, but rare.

ANCHYCTEIS n. g.

Head deflexed. Prosternum in front of coxæ short, prolonged between and slightly posterior to them, coxæ oval, more prominent than the prosternum. Frontal suture distinct. Mouth parts as in *Odontonyx*, except that the lobes of the ligula are much less prolonged. Antennæ a little longer than half the body, serrate ♀ or pectinate ♂, first joint rather short, conical, second very small, 3—10 moderately long, bearing a process from the anterior angle as long as the joint, eleventh simple, as long as the two preceding. Mesosternum separating moderately the middle coxæ which are oval and slightly prominent. Metasternum moderate, side pieces rather wide, epimera very small. Posterior coxæ very gradually dilated internally and contiguous on the median line. Legs moderate, tibiæ with spurs, tarsi slender, simple without onychium, claws simple.

This genus is distinguished from *Anchytarsus* by the structure of the antennæ, the more deflexed head with a frontal suture and the contiguous hind coxæ.

A. velutina n. sp.—Oblong oval, robust, black, moderately shining, sparsely clothed with extremely fine black pubescence. Head deflexed not visible from above, densely punctate. Thorax one-third broader than long, narrowed in front, apex truncate, sides very little arcuate, base bisinuate, disc convex, moderately densely punctured. Scutellum oval, concave, acute at tip. Elytra wider than the thorax at base, sides nearly parallel, narrowed at apical third, convex, surface obsoletely striate, striæ punctured near the apex, intervals flat at base, more convex posteriorly, densely punctulate. Body beneath densely finely punctulate. Length .40 inch; 10 mm. (Pl. I, fig. 4).

In form this insect resembles a gigantic *Ptilodactyla*. The striæ are often extremely vague, but in those in which the sculpture is best developed there are two short scutellar striæ. One specimen before me has brownish pubescence, another has the elytra and tibiæ luteous.

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Four ♂, one ♀, collected by H. K. Morrison, in western Nevada, the specimen with luteous elytra was given me by Mr. H. Edwards, who collected it at Shasta, California.

ARÆOPUS Lec.

Head deflexed, in repose resting against the prosternum which is very short before the coxæ and vertical in front, concealed from above by a slight prolongation of the thorax. Frontal suture distinct, clypeus partly membranous in front. Antennæ but little longer than the head and thorax, first joint obconical, second short, 3—10 subserrate, as broad as long, eleventh a little longer and more slender. Eyes round, not prominent. Labrum transverse, rounded in front. Mandibles not prominent. Mentum transverse, narrowed in front. Ligula with four slender ciliate appendages, the palpi short with the last joint triangular. Last joint of maxillary palpi elongate triangular. Prosternum short in front of the coxæ and vertical for the reception of the head, narrowly prolonged between the coxæ terminating in an obtuse point meeting the mesosternum. Anterior coxæ conical, more prominent than the prosternum and with a large trochantin. Mesosternum oblique, separating the coxæ moderately, triangularly emarginate in front. Metasternum moderate, side pieces wide, epimera small. Posterior coxæ gradually dilated within and contiguous. Segments 1—4 of abdomen nearly equal, fifth a little longer. Legs moderate, tibiæ with small spurs. Tarsi slender, simple, joints 1—4 gradually decreasing, fifth as long as the preceding three, without onychium and with simple claws.

This genus is closely allied to the three which precede, especially *Odontonyx*, although differing in many of its details. The thoracic margin is more completely obliterated than any of the preceding genera, and the anterior margin is arcuate forming a hood concealing completely the head from above.

A. monachus Lec.—Oblong, brownish, very feebly shining, moderately densely clothed with brownish-yellow pubescence. Head densely punctured. Thorax wider than long, much narrowed in front, apex oval and overhanging the head, base bisinuate, margin very obtusely rounded, disc convex, densely punctured, a fovea at base on each side of the scutellum. Elytra a little wider than the thorax, gradually but feebly wider to behind the middle then gradually narrowed to tip, surface feebly striate, the sutural deeply impressed near the base, striæ finely punctured, intervals densely punctulate. Body beneath densely punctulate, abdominal segments 1—4 with a distinct impression posteriorly close to and parallel with the sutures. Length .40 inch; 10 mm. (Pl. I, fig. 5).

Occurs in Oregon.

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Sub-Family II.—Helodidæ.

This sub-family differs principally from the preceding in the absence of trochantin to the anterior coxæ. The species are all of rather small size and are found on plants near water. The genera are capable of division into tribes in the following manner:

Tarsi with the fourth joint very small, third lobed beneath. (Pl. I, fig. 6 a). Ptilodactylini.

Tarsi with the fourth joint as large or larger than the third.

Posterior coxæ very large.....Eucinetini.

Posterior coxæ at most moderately dilated internally.

Claws without membranous appendage.

Front moderately broad, prosternum very short before and very narrow between the coxæ.....Helodini.

Front narrowed by the insertion of the antennæ, prosternum distinct before and between the coxæ.....Eubriini.

Claws with membranous appendage arising from the base of each claw and as long as it. (Pl. I, fig. 16 c).

Front narrowed by the insertion of the antennæ.....Placonychini.

In the above tribes the Ptilodactylini seem to lead very naturally from *Anchytarsus* of the preceding tribe. Thomson detects a relationship between *Eucinctus* and *Catops* which entirely escapes me, although the structure of the under side and legs has some resemblance to *Mordella*, without however any special relationship. The *Eubriini* and *Placonychini* have more than a resemblance to the Parnidæ, the anomalous *Psephenus* of that family affording a close link with the present. The last named tribe by its appendiculate claws approaches in another direction the Melyridæ, but the affinities otherwise are not well marked.

Tribe I.—*Ptilodactylini.*

Head deflexed, concealed from above by a moderate prolongation of the thorax. Clypeus separated from the front by a distinct suture. Prosternum moderate in front of the coxæ and prolonged between them but less prominent. Anterior coxæ without trochantin. Tibiæ not carinate on the outer edge. Tarsi above convex, the first joint of the posterior longer than the others, the fourth on all very small and almost concealed within the third, second and third lobed beneath. Claws broadly toothed at base. Tibial spurs moderate on the two anterior pairs, elongate on the posterior.

The above characters excepting the small fourth tarsal joint, apply to the limited representation of the tribe in our fauna rather than to the tribe as a whole. One genus occurs in our fauna remarkable for

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the structure of the antennæ of the male, in which the joints 3—10 are furnished with an articulated appendage as long as the joint or even longer, inserted near the base.

PTILODACTYLA Latr.

Head deflexed, clypeus distinct from the front and apparently articulated. Eyes round, moderately prominent, partly concealed by the angles of the thorax. Antennæ arising very close to the margin of the front, nearly as long as the body, slender, simple in the female, in male with joints 4—10 furnished with an articulated appendage arising from the base and as long as the joint itself. Labrum moderately prominent, transverse. Mentum transverse, rounded in front, ligula large, bilobed, the palpi short, the terminal joint oval. Maxillary palpi longer, the terminal joint slightly triangular in the male, oval in the female. Prosternum moderate before the coxæ and very narrowly prolonged between them, the coxæ oval, prominent, without trochantin. Middle coxæ narrowly separated. Posterior coxæ gradually but feebly dilated within and contiguous at middle. Abdomen of five segments, the fifth longer and emarginate in the male. Legs slender, with distinct terminal spurs, those of the posterior tibiæ longer. Tarsi with the first joint long especially on the hind legs, the second and third are feebly bilobed and beneath the second is slightly prolonged, the third has a long lobe, fourth joint small, scarcely visible, fifth moderately long. Claws with a broad rectangular tooth at base.

The form of the species is oblong, the head concealed from above and the aspect much like some of the genera of the preceding subfamily.

Two species are known to me.

Tooth of tarsal claw basal, not attaining the middle of the claw.
Last segment of ♂ emarginate, of ♀ entire..... .....**serricollis.**
Tooth of tarsal claw attaining the middle and on the anterior tarsi nearly as long as the claw.
Last segment ♂ and ♀ emarginate..... .....**angustata.**

P. serricollis Say.—Oblong oval, castaneous or piceous, moderately shining, sparsely pubescent. Head coarsely and moderately densely punctured. Thorax when viewed from above nearly semicircular, apex slightly prolonged over the head, lateral margin acute, base feebly bisinuate, the margin finely tridenticulate opposite the scutellum, disc convex, coarsely and moderately densely punctured. Scutellum cordiform. Elytra oblong oval, not wider than the thorax, sides moderately arcuate, disc moderately convex and with striæ of moderately coarse punctures, the intervals sparsely punctulate, scutellar stria long. Metasternum shining, sparsely coarsely punctate. Abdomen sub-

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opaque, finely alutaceous, sparsely punctate. Legs and antennæ pale. Length .14—.20 inch; 3.5—5 mm. (Pl. I, fig. 6).

The tooth of the claws is rectangular at its free end and is not half the length of the claw. The rows of elytral punctures are often very indistinct.

Occurs from the Middle States westward to Missouri and south to Florida.

P. angustata n. sp.—Similar in form to the preceding but more slender and parallel. Length .14—.18 inch; 3.5—4.5 mm.

The principal differences between this and the preceding species are those given in the table. The tooth of the claws is more prolonged and extends beyond the middle in the posterior claws, and in the anterior claws is still longer, so that a form similar to that of *Phytalus* is produced.

Three specimens, Florida.

Tribe II.—*Eucinetini.*

Head strongly deflexed, resting on the anterior coxæ, front prolonged in a feeble beak, frontal suture distinct. Labrum moderately prominent concealing the mandibles. Antennæ filiform. Labial palpi with terminal joint ovoid, of the maxillary cylindrical pointed at tip. Thorax short, narrowed in front, beneath with an extremely short prosternum in front of the coxæ and a small prolongation at middle, side pieces entirely wanting. Anterior coxæ long and without trochantin, received in repose in cavities on each side of the mesosternum. The latter separating the middle coxæ, anteriorly a triangular depression which receives the small point of the prosternum in repose, middle coxæ oval, not prominent and without trochantin, the side pieces large, diagonally divided and nearly equal. Metasternum very short, acutely prolonged at middle between the posterior coxæ, the episterna of moderate width, narrowed behind and without epimera. Posterior coxæ formed of broad plates which attain the side margin of the body and cover the greater part of the first ventral segment. Legs moderately long, slender, anterior tibiæ without spurs, middle and posterior with rather long spurs. Tarsi slender, gradually attenuate to tip, joints 1—4 gradually decreasing in length, last joint a little longer than the fourth. Claws small, simple. Body oval-elliptic or navicular, convex, pubescent. (Pl. I, fig. 7, details).

The males have the anterior tarsi dilated and a distinct sixth ventral segment. The anterior tarsi of the female are slender, and the sixth segment in some species not visible and in others very

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feebly so. In two species the posterior tibiæ have but one spur, a fact which seemed at first doubtful but verified by an examination of about a dozen specimens.

The elytra present two types of sculpture, punctuation and transversely strigose and the striæ are variable in the former type but quite constantly present in the latter.

The above characters reduced to tabular form give the following arrangement of our species.

Elytra punctured. Posterior tibiæ with two spurs.....2.
Elytra transversely strigose.....3.
2.—Punctuation rather coarse.
Body feebly convex, not more so than in *Cyphon*.....**infumatus.**
Body ovate convex.
Elytra substriate especially near the tip.....**oviformis.**
Elytra without striæ except the sutural.....**testaceus.**
Punctuation dense and rather fine, elytra with the sutural stria only.
punctulatus.
3.—Posterior tibiæ with two spurs.....**morio.**
Posterior tibiæ with one long spur. (Pl. I, fig. 7 a).
Strigæ of elytra closely approximated, the tip ferruginous...**terminalis.**
Strigæ of elytra distant, the surface more shining, the tip not ferruginous.....**strigosus.**

The European *E. hæmorrhous* is closely allied to *terminalis*, but is more obtuse in front and has the rufous spot at the tip of the elytra better limited, it has like the last two species in the table a single spur at the tip of the posterior tibia.

E. infumatus Lec.—Elongate oval, feebly convex, scarcely narrowed behind, piceous, moderately shining, clothed with short brown pubescence. Head and thorax finely sparsely punctate. Elytra moderately densely punctate, and with the sutural stria alone, which extends from apex to middle and gradually disappears. Body beneath finely and moderately densely punctate. Legs ferruginous. Three basal joints of antennæ pale. Length .16 inch; 4 mm.

In the females the sixth abdominal segment is hardly visible. The posterior tibiæ have two terminal spurs.

This insect has a form not unlike that of certain Hydroporus, *e. g. tenebrosus*, etc.

Occurs near San Francisco, under bark, in February.

E. oviformis Lec.—Ovate, convex, narrower posteriorly, piceous or nearly black, sparsely clothed with short brownish pubescence. Head and thorax very sparsely punctulate. Elytra moderately densely punctate and near the apex substriate. Body beneath finely, not densely punctulate. Antennæ and legs paler. Length .16 inch; 4 mm.

More convex than the preceding with the elytra substriate and

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a little more closely punctate. The sixth segment in the female is not visible. The posterior tibiæ have two terminal spurs.

Occurs in Illinois and Virginia.

E. testaceus Lec.—Elongate ovate, narrower posteriorly, testaceous, sparsely pubescent. Head and thorax very sparsely punctulate. Elytra not densely punctate and with the sutural stria alone distinct. Body beneath not very densely punctulate. Length .14 inch; 3.5 mm.

More elongate than either of the preceding and of a pale color. The elytra are less densely punctured than in *oviformis* and not substriate. The sixth segment is quite visible in the female. The posterior tibiæ have two terminal spurs.

The color of this species appears to be constantly pale.

Occurs from Canada to Pennsylvania.

E. punctulatus Lec.—Moderately elongate oval, convex, brownish or piceous, sparsely finely pubescent. Head and thorax sparsely and very finely punctulate. Elytra very densely punctulate and without traces of striæ except the sutural. Body beneath densely finely punctulate. Antennæ and legs slightly paler than the rest of the body. Length .10 inch; 2.5 mm.

This species has the elytra so densely punctulate that the interspaces are smaller than the punctures. The sixth segment is barely visible in the female. The posterior tibiæ have two spurs.

Two specimens, Michigan, Hubbard and Schwarz; Virginia, Ulke.

E. morio Lec.—Elongate oval, narrower behind, convex, nearly black, sparsely pubescent. Head and thorax finely sparsely punctulate. Elytra distinctly substriate from base to apex, surface densely transversely strigose, the strigæ composed of minute punctures. Body beneath densely punctulate. Legs and antennæ piceous. Length .10—.12 inch; 2.5—3 mm.

Varies in color from black to brownish. In the female the sixth segment is distinctly visible and in the male a small seventh also. The posterior tibiæ have two spurs.

Illinois, Virginia and Georgia.

E. terminalis Lec.—Similar in form and sculpture to *morio*, but the elytra have a moderately well defined rufous spot and the strigæ are less approximate. Length .10 inch; 2.5 mm.

The sixth segment is feebly visible in the female. The posterior tibiæ have one spur only. In this latter character especially, it differs from *morio*. I have several specimens from New Mexico, a little larger and more shining, which with further specimens may be found distinct.

Occurs from Vermont to Illinois. A description of this species without name occurs in Proc. Acad. 1853, p. 357, the name first appears in the List Col. N. A. p. 50, without evidence of the identity of the two.

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E. strigosus Lec.—Form of *morio* but much more shining, entirely black, very sparsely pubescent. Elytra with strigæ at least twice as distant as in either of the preceding. Body beneath densely punctulate. Legs and antennæ ferruginous. Length .10 inch; 2.5 mm.

The sixth segment is feebly visible in the female. The posterior tibiæ have but one spur.

One specimen, Pennsylvania. I have seen another specimen of little greater size with the tip of the elytra reddish, from Nevada, in the cabinet of Mr. Ulke, which with a larger number of specimens may prove distinct.

Tribe III.—*Eubriini.*

Head deflexed, front narrow contracted by the insertion of the antennæ and prolonged into a slight beak. Mandibles entirely concealed. Maxillary palpi slender, elongated. Anterior coxæ transverse, without trochantin, separated by the prosternum and not more prominent than it except in *Acneus*. Middle coxæ more widely separated than the anterior, the mesosternum being more or less protuberant, either truncate or emarginate. The posterior coxæ are scarcely dilated internally. Tibiæ with minute terminal spurs, in two genera. Tarsi slender, slightly dilated in *Dicranopselaphus*, claws variable.

The species composing this tribe are of oval moderately robust form with teguments of firmer consistence than in *Helodes* or *Cyphon*. The genera in our fauna all agree in having the terminal joint of the palpi simple, without appendages. In *Eubria* the last joint of both palpi is furnished with three short spines and in the *Dicranopselaphus* of Mexico with two.

The most curious fact noticed is the sexual difference in the claws of *Ectopria*. In the female the claws are simple at tip, at base a broad tooth rectangular in front; in the male the tip is bifid. Guérin describes the claws of *Dicranopselaphus* as tridentate but this is not exactly true, he probably saw the claws obliquely instead of in front. As I have seen only males of this genus I do not know if they differ sexually as in *Ectopria*, but it is probable that this is the case. The claws of *Eubria* examined by me have no basal tooth as in *Ectopria*, but the anterior claw on each pair of legs is bifid at tip, (Pl. I, fig. 9), the posterior entirely simple; my material being entirely insufficient I am unable to say whether the claws differ in the sexes. As the genus does not occur in our fauna this is left for European determination. The bifid structure of the claw can only be detected by a comparatively high power and by viewing the claw directly on end.

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The genera of this tribe are as follows:

Prosternum of moderate width not depressed between the coxæ.
Claws toothed at base.
Tarsi slender, fourth joint smaller than the third and not prolonged beneath the fifth.....**Ectopria.**
Tarsi slightly dilated, joints 2—3—4 feebly emarginate, the fourth slightly prolonged beneath the fifth.....**Dicranopselaphus.**
Claws not toothed at base, tarsi very slender.....**Eubria.**
Prosternum narrow depressed between the coxæ. Claws slightly broader at base. Tarsi as in *Ectopria*.....**Aeneus.**

ECTOPRIA Lec.

Head vertical, received in the thorax as far as the eyes which are partly concealed. Eyes moderately prominent. Antennæ half the length of body, feebly serrate ♀ or moderately strongly serrate ♂. Front narrowed by the insertion of the antennæ, then broader in front. Labrum transverse, concealing the mandibles. Mentum transverse, narrowed in front, ligula with four slender processes, the inner pair longer, labial palpi short, last joint triangular. Maxillary palpi slender elongate, second joint as long as the next two united, third short, fourth slender tip slightly oblique, truncate, chisel-shaped without terminal appendages. Prosternum moderately long before the coxæ, prolonged between them and meeting the mesosternum. Anterior coxæ not more prominent than the prosternum. Mesosternum oblique in front and broadly emarginate, the coxæ more widely separated than the anterior. Metasternum rather short, the episterna wide, epimera small. Posterior coxæ very narrow, not contiguous. Ventral segments subequal. Legs moderate, tibiæ with minute spurs. Tarsi slender, moderately elongate, not lobed, first and fifth joints equal and as long as the three intermediate together. Claws (Pl, I, fig. 8 g, h), slender and simple at tip ♀, or bifid at tip ♂, at base with a broad tooth in both sexes. Body ovate, convex, winged.

Male.—Antennæ decidedly serrate, first joint conical, second very small, third broadly triangular not longer than the fourth, joints 4—10 serrate or subpectinate, last joint elongate. Eyes large. (Pl. I, fig. 8 b).

Female.—Antennæ much less serrate than in the male, first two joints similar to the male, joints 3—4 equal, each as long as the first two and nearly to the fifth and sixth, joints 5—11 subequal, feebly serrate. Eyes smaller. (Pl. I, fig. 8 a).

This genus as will be seen by comparison possesses nearly all the essential characters of *Eubria*, but differs in the form of the claws and the absence of terminal appendages to the maxillary

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palpi. The mesosternum is less prominent and decidedly emarginate in front.

One species occurs in our fauna.

E. nervosa Mels.—Oval, broader posteriorly, moderately convex, sparsely clothed with short cinereous pubescence. Thorax twice as wide as long, much narrowed in front, apex truncate, half as wide as base, emarginate, base feebly bisinuate, hind angles subacute, sides moderately arcuate, margin acute, disc moderately convex, sparsely punctate, intervals very finely punctulate but moderately shining, near the basal margin on each side of the scutellum a fovea sometimes indistinct. Elytra not wider at base than the thorax, sides arcuate and gradually broader to apical third, surface sparsely punctate, intervals finely punctulate-scabrous. Body beneath very finely punctulate. Femora piceous, tibiæ and tarsi pale. Length .12—.20 inch; 3—5 mm. (Pl. I, fig. 8).

This species is extremely variable in size and appearance, presenting such a diversity of aspect that it may be considered entirely pardonable to have described it under several names. These will be considered in order.

Eurea nervosa.—This form is female. It is larger, more robust, piceous with slightly paler elytra on which are seen three darker lines which unite before the apex, replacing in this insect the striæ of *Eubria palustris.*

Ectopria tarsalis and *tibialis.*—Here the elytra are similar in color to the thorax, a little more shining than in *nervosa*, and with the darker lines entirely hidden. The thorax in this and the preceding form is entirely piceous without lateral pale space. Of this variety both ♂ and ♀ occur.

Var. ———.—This is a form in which the elytra exhibit faint traces of the vittæ but the sides of the thorax are broadly yellow.

Ectopria thoracica.—Here the elytra are always nearly black and the sides of the thorax broadly yellow. Of this form both sexes occur, the males more commonly.

In addition to the above variations I have seen three ♂'s in which the anterior margin of the clypeus is slightly reflexed. These have the antennæ serrate, the joints simply triangular, while other specimens precisely similar in every other respect have the margin of the clypeus normal. The males of the *thoracica* form present two variations in the form of the antennæ, the one simply serrate as above described, the other subpectinate, the branch from the anterior apical angle being nearly as long as the joint itself. (Pl. I, fig. 8 c, d).

From the above remarks it may be inferred that the species is an aggregate of as yet undifferentiated forms, as such I view it. That

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the forms are taken indiscriminately together is an additional although slight evidence of their unity, and that the forms above described are entirely inseparable specifically is completely demonstrable from the material before me.

Occurs from Massachusetts to Georgia and Ohio.

DICRANOPSELAPHUS Guér.

Very closely allied to *Ectopria*, differing as follows: Tarsi slightly dilated, joints 2—3—4 slightly emarginate, the fourth as long as the third and slightly prolonged beneath.

The specimens before me are all males, and I find the claws broadly toothed at base and bifid at tip as in the males of *Ectopria*. The antennæ are also similarly formed, being either serrate or feebly pectinate. The terminal joint of the maxillary palpi is bi-appendiculate at tip in the Mexican species, but in our's even more slender and not appendiculate. I feel entirely unwilling to separate our species on this difference in the palpi, inasmuch as it agrees in every other respect with *Dicranopselaphus*, even in general details of ornamentation and sculpture.

One species occurs in our fauna.

D. variegatus n. sp.—Broadly oval, moderately convex, brownish, thorax darker, elytra clouded. Head densely punctate. Antennæ ♂ serrate, joints 3—10 triangular, very little longer than wide. Thorax semicircular with an apical emargination, base nearly truncate, sides regularly arcuate, disc moderately convex, a vague depression near base each side of scutellum, surface moderately densely punctate with small impunctured intervals, basal margin finely crenulate. Elytra as wide at base as thorax and but little longer than wide, sides feebly arcuate, apex broadly, disc moderately convex, brown with paler anastomosing lines which are less punctured, intervals apparently alutaceous but really with reticulations composed of lines of very closely placed punctures, surface clothed with fine and very short sericeous pubescence. Body beneath darker and a little more shining than above, very finely pubescent. Length .12 inch; 3 mm.

This species is smaller than *D. flavicornis* Guér., and with differently formed antennæ. The superficial resemblance in form, color and sculpture is very great, the last joint of the palpi is slender and not appendiculate.

Two specimens, Illinois and Maryland, rare.

ACNEUS n. g.

This generic name is proposed for a species which is closely allied to *Ectopria* but differs as follows:

Prosternum narrow and slightly depressed between the coxæ which are therefore more prominent than it.

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The specimen before me is a female and therefore does not exhibit fully the generic characters. The claws are simple at tip and merely slightly broader at base without a tooth. The antennæ have the third joint as long as the three following united. When the male is known it will probably show characters in the claws more nearly like *Eubria* than *Ectopria*. The palpi are wanting in my specimen. The tarsi are as in *Ectopria*.

A. quadrimaculatus n. sp.—Oval, slightly broader behind, elytra each with two yellow spots. Antennæ nearly half the length of the body, first joint moderately stout, cylindrical, narrowed at base, second small globular, third nearly twice as long as the first two and equal to the next three, 4—10 triangular serrate, eleventh longer than the tenth. Thorax semicircular with the apex emarginate, base feebly bisinuate, disc convex with the posterior fovea, surface shining, very sparsely punctate and with very little pubescence. Elytra as wide at base as the thorax, very little longer than wide, disc moderately convex with rather coarse punctures forming distant but irregular striæ, intervals densely punctulate-scabrous but moderately shining and with extremely fine pubescence; each elytron with two yellow spots, one oblique a little in front of middle, the second near the sutural angle smaller. Body beneath black, moderately shining, finely sparsely punctulate and finely pubescent. Legs black. Length .16 inch; 4 mm. (Pl. I, fig. 10).

Of the form of *Ectopria* but with more shining surface.

One specimen, California, (Sauzalito ?).

Tribe IV.—*Helodini.*

Form usually oval, sometimes oblong, surface always more or less pubescent. Head deflexed, usually more or less visible from above, rarely concealed by a hood like projection of the thorax, clypeal suture not visible. The prosternum is very short in front of the coxæ and is extremely narrow between them. The anterior coxæ are long, oblique, moderately prominent, received against the anterior portion of the mesosternum, and without trochantin. The posterior coxæ are at least moderately dilated internally and contiguous. The tibiæ are sulcate on their outer edge. The tarsi are of moderate length, the fourth joint bilobed and always larger than the third and the claws are simple.

The labial palpi in all the genera except *Cyphon* have the third joint inserted at the side of the second. The tarsi also exhibit two forms, in one of which the upper side is bicarinate continuing the structure of the edge of the tibia, in the other the upper side is simply convex. The posterior tibial spurs exhibit a great variation in length, being very small in most of the species but elongate in *Scirtes*.

The under side of the head has a strongly marked subocular ridge

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similar to that to which I have already called attention in some Tachyporini, but still more strongly marked. In *Helodes* and *Scirtes* (except one species), this ridge is absent.

Scirtes is remarkable for the dilated hind femora giving the species a saltatorial power. In some *Helodes* the femora are somewhat thickened and approach the structure of *Scirtes*.

The genera have had but one addition since the publication of the "Classification," namely, *Microcara*, the validity of which is denied by some authors, but its characters give it more claim to be separated from *Helodes* than do those of *Prionocyphon*.

Our genera are separated in the following manner:

Third joint of labial palpi arising from the side of the second. (Pl. I, fig. 17).
  Posterior femora normal, tibial spurs moderate.
    First joint of antennæ expanded, posterior tarsi flat above and bicarinate. (Pl. I, fig. 12)..... **Prionocyphon.**
    First joint of antennæ not expanded.
      Posterior tarsi convex above, not carinate, the third joint normally visible..... **Microcara.**
      Posterior tarsi flat and bicarinate above, the third joint in great part concealed by the prolongation of the upper edge of second joint. (Pl. I, fig. 14)..... **Helodes.**
  Posterior femora broad, saltatorial, the spurs of posterior tibiæ long. (Pl. I, fig. 15)..... **Scirtes.**
Third joint of labial palpi arising from the end of the second. Tarsi convex above not carinate ..... **Cyphon.**

The above genera are all represented in the Atlantic region, *Cyphon* and *Helodes* alone in the Pacific, although Motschulsky describes one *Scirtes* from California. *Helodes* as above defined includes *Sacodes* Lec.

PRIONOCYPHON Redt.

Head deflexed, front without suture, a well defined subocular ridge. Eyes round, moderately prominent. Antennæ slender, longer than half the body, first joint oval, explanate in front, second and third joints very small, the latter especially so, fourth joint a little shorter than the first, fifth a little shorter than fourth, 6—11 subequal, similar to the fourth, in the male of one species a double row of appendages arises from the base of joints 4—10. Mentum nearly square, ligula transverse, emarginate in front, the angles rounded. Labial palpi with second joint long, the third arising at a right angle from its middle. Maxillary palpi longer, last joint oval, subacute at tip. Prosternum in front of coxæ very short, prolonged in a slender plate between and extending behind them (the tip is variable in the two

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species), meeting the mesosternum, the anterior coxæ prominent. Mesosternum horizontal in front, very narrowly separating the middle coxæ. Posterior coxæ suddenly dilated within forming an oval plate and contiguous at their inner margin. Legs moderate, tibiæ flattened on their outer edge and with distinct terminal spurs. Tarsi flattened above, first joint as long as the next three, 2—3—4 subequal, the latter broader and subbilobed, fifth moderate, the claws simple.

The affinities of this genus have already been sufficiently alluded to in the synoptic table.

Prosternum at tip remaining a vertical lamina the same as between the coxæ. (Pl. I, fig. 11 b).

Males with joints 4—10 of antennæ bi-appendiculate.....**discoideus.**

Prosternum at tip dilated in the form of a spear-head. (Pl. I, fig. 11 a).

Males with simple antennæ.....**limbatus.**

P. discoideus Say.—Oval, slightly oblong, moderately convex, yellow, elytra with large discal black space of variable size, divided by the suture. Head sparsely punctate. Thorax short, transverse, very little narrowed in front, sides feebly arcuate, margin not explanate, apex and base bisinuate, disc moderately convex, sparsely punctulate. Elytra coarsely moderately densely punctate. Body beneath rather sparsely punctate. Length .12—.20 inch; 3—5 mm.

The males have two branches (not articulated), arising from the base of joints 4—10, these appendages rather longer than the joint and fimbriate. The females are larger and broader and have simple antennæ. In both sexes the antennæ are yellow. (Pl. I, fig. 12).

Occurs from Pennsylvania to Missouri and Georgia.

P. limbatus Lec.—This species in its form and superficial details resembles the preceding. It differs however in the male having simple antennæ, and in both sexes by the structure of the tip of the prosternum. The antennæ are black or piceous except the three basal joints. Length .15—.20 inch; 4—5 mm.

In *discoideus* the tip of the prosternum is a simple vertical lamina received in a narrow notch of the mesosternum. In this species the tip is dilated in the form of a narrow spear-head and lies upon the mesosternum.

Occurs from Pennsylvania to Georgia.

MICROCARA Thoms.

Head strongly deflexed, a well defined subocular carina, under side of head slightly concave. Antennæ a little longer than half the body, slender, filiform, first joint oval, second shorter, conical, third a little longer than second, 4—10 gradually but very feebly shorter, eleventh longer than the tenth. Labrum transverse. Front without suture.

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Mentum transverse, ligula moderately prominent, feebly emarginate, labial palpi short, the second joint long, third inserted at a right angle at the middle of the second. Maxillary palpi moderately long, last joint more slender than the preceding and acute at tip. Prosternum very short before the coxæ, prolonged in a very thin lamina between them and a little dilated at tip behind and touching the mesosternum. Anterior coxæ conical, prominent, without trochantin. Mesosternum very short, not entirely separating the middle coxæ. Metasternum short, side pieces moderate, epimera concealed. Posterior coxæ suddenly dilated within in oval plates and contiguous at middle. Legs normal, tibiæ flattened on the outer side and without terminal spurs. Tarsi slightly dilated, shorter than the tibiæ, joints 1—3 gradually decreasing in length, fourth broader, subbilobed, fifth not elongated. Claws simple.

By the form of its tarsi this genus resembles *Cyphon*, from which it differs by the structure of the labial palpi. From the other genera it differs by the much shorter first joint of hind tarsi, which is here not flattened above as in all except *Scirtes*. This genus seems to me well founded and as fully entitled to recognition as either *Helodes* or *Cyphon*.

M. explanata Lec.—Elongate oval, brownish testaceous, sparsely pubescent. Thorax twice as wide as long, apex moderately arcuate, sides more strongly arcuate, base feebly bisinuate, hind angles rectangular, lateral margin rather broadly explanate and slightly reflexed, disc densely finely punctured. Elytra a little wider than the thorax and rather more than three times as long, surface densely punctured, more coarsely than the thorax. Body beneath moderately densely punctulate. Length .20—.22 inch; 5—5.5 mm.

Occurs in Canada and Michigan. Resembles the European *Helodes lurida*.

SCIRTES Illig.

Head deflexed, front without suture, beneath without lateral elevated line below the eyes, (except *orbiculatus*). Antennæ slender, half as long as the body. Eyes round, moderately prominent. Labrum short. Mentum quadrangular, ligula rounded in front, the third joint of the palpi inserted at the side of the second or at least very obliquely. Maxillary palpi moderate, last joint longer than the third, truncate at tip. Prosternum short, not prolonged between the coxæ which are prominent and contiguous without trochantin. Mesosternum narrow. Metasternum moderate, episterna rather broad, epimera concealed. Posterior coxæ suddenly dilated in a small plate within and contiguous. Anterior and middle legs normal, the tibiæ with moderate spurs, posterior femora oval, saltatorial, the tibiæ with one long and a shorter

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spur. Tarsi with fourth joint bilobed, the first joint of the posterior as long as all the others. Claws simple.

The outer edge of the tibiæ is flattened and acutely limited each side. The labial palpi show a tendency to vary somewhat in structure. Usually the third joint is inserted at the middle of the side of the second, but in *Troberti* the second joint is rather stout, very obliquely truncate, and the third is inserted in the truncation. The head beneath has the subocular ridge in *orbiculatus* alone.

Our species as far as known are:

Head beneath without subocular ridge.
Color above uniformly piceous.....**tibialis.**
Color testaceous, elytra with short brown lines. (Pl. I, fig. 15)...**Troberti.**
Head beneath with subocular ridge.
Color of elytra piceous with common central red spot.....**orbiculatus.**

S. tibialis Guér.—Broadly oval, piceous or nearly black, moderately shining, sparsely pubescent. Head and thorax nearly smooth. Elytra moderately densely punctulate. Body beneath moderately densely punctulate. Femora piceous, tibiæ, tarsi, palpi and antennæ paler. Length .10—.14 inch; 2.5—3.5 mm.

Occurs in the more northern States and Canada, and very closely allied to the European *hemisphericus*.

S. Troberti Guér.—Broadly oval, moderately convex, brownish testaceous, very feebly pubescent. Head and thorax moderately densely punctate. Thorax brownish testaceous with paler spaces. Elytra more coarsely punctured than the thorax, pale testaceous with brownish longitudinal lines forming three irregular dentate bands, basal, median and subapical. Body beneath brownish testaceous, moderately densely punctulate. Length .20—.22 inch: 5—5.5 mm. (Pl. I, fig. 15).

Differs from our other species by the larger size and its coloration.

Occurs in Texas and Mexico.

S. orbiculatus Fab.—Broadly oval, black or piceous, moderately shining, sparsely pubescent. Head and thorax sparsely punctate. Elytra more coarsely punctured than the thorax. Body beneath moderately densely punctulate. Femora piceous, tibiæ, tarsi and antennæ pale. Length .10—.12 inch; 2.5—3 mm.

This species varies considerably in color giving rise to several synonyms, these are as follows:

orbiculatus Fab.—Sides of the thorax and common central spot of elytra reddish-yellow; *centralis* Say, *lateralis* Lec., *suturalis* Zieg.

suturalis Guér.—Thorax entirely piceous.

ruficollis Lec.—Thorax entirely yellow, elytra pale from immaturity but showing the common central spot.

Occurs from the Middle States to New Mexico.

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The following remains unknown:

S. californicus Motsch.—Subovatus, convexus, nigro-castaneus, glaber, ore, antennis pedibusque anteriores testaceis, pedibus posteriores nigro-fuscis; femoribus incrassatis. Long. 1½ lin.

Occurs in California.

HELODES Latr.

Head deflexed, usually concealed from above by the prolonged thorax, without frontal suture, beneath without subocular ridge. Eyes round, moderately prominent. Mouth parts as in *Microcara*. Antennæ slender. Prosternum very short before the coxæ and not prolonged between them, the coxæ prominent and contiguous. Middle coxæ moderately prominent and contiguous. Metasternum short. Posterior coxæ suddenly dilated within and contiguous at middle. Legs moderate. Tibiæ with distinct terminal spurs, the posterior margin flattened. Tarsi flattened and bicarinate above, first joint as long as the rest united, second less than half the first and prolonged above in two dentiform processes which nearly conceal the very small third joint beneath, fourth longer than the third and subbilobed, fifth rather short. Claws simple. (Pl. I, fig. 14).

In most of the species of this genus the thorax is prolonged in front as in *Sacium*, and entirely conceals the head. The structure of the tarsi distinguishes it from all the other genera of the tribe.

Our species are as follows:

Form oblong, more than twice as wide as long.
- Thorax subtruncate in front, the margin not reflexed..... **apicalis.**
- Thorax prolonged in front, nearly semicircular in outline, the apical margin slightly reflexed..... **maculicollis.**

Form oval or broadly ovate. Thorax prolonged in front.
- Oval, longer than broad.
  - Elytra yellow with two black spots on each..... **pulchella.**
  - Elytra entirely black..... **fuscipennis.**
- Broadly ovate, nearly as broad as long.
  - Elytra entirely black..... **thoracica.**

The species all agree in the structure of the antennæ. The first joint is oval, second round scarcely as large as half the first, third minute, fourth as long as the preceding three, 5—11 equal, a little shorter than the fourth. The posterior femora are stouter than in *Cyphon* or *Microcara* but not saltatorial as in *Scirtes*, although the present genus is a very natural intermediate between the two former and the latter, not only in this character but also in the presence of tibial spurs of moderate size. Guérin also mentions the intermediate

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character of the above species as far as they were known to him. (Spec. et Icon. fasc. 3, No. 9, p. 14).

The first two species in the above table are more closely allied to the *pallida* of Europe than the others.

Among the European species of *Helodes* and *Microcara*, Tournier has observed in some of the males an emargination of the last ventral segment, with small foveæ on one or both of the last two segments.

H. apicalis Lec.—Form oblong, finely pubescent, color variable. Head moderately densely punctate. Thorax twice as wide as long, narrower in front, apex very feebly arcuate, sides more strongly, base feebly bisinuate, hind angles obtuse, anterior angles rounded, margin narrowly reflexed, disc moderately convex, moderately punctate. Elytra more densely and coarsely punctured than the thorax. Body beneath finely and densely punctured. Length .16—.20 inch; 4—5 mm.

The color is variable. In the type the color above is luteous, the tip of the elytra and a small apical spot on the thorax piceous, beneath piceous with pale legs. In other specimens the thorax is entirely yellow. A specimen in my cabinet has the thorax yellow and the elytra black, another in the cabinet of Dr. Leconte is totally piceous.

There is a slight trace of a post-scutellar depression of the elytra in all the specimens, and in one a vague tendency to become subtricostate.

Occurs in California from San Francisco northward.

H. maculicollis n. sp.—Form oblong, very finely pubescent, color black, thorax broadly yellow at the sides. Head punctate. Thorax semicircular, apical and lateral margins slightly reflexed, disc moderately convex, not densely punctate. Elytra more coarsely and densely punctured than the thorax. Body beneath rather finely, moderately densely punctulate. Length .16—.18 inch; 4—4.5 mm.

One specimen before me has the abdomen pale, the other piceous. This species is closely related to the preceding in form and sculpture, but differs in having the thorax truly semicircular and the head not at all visible from above.

Canada, New Hampshire and Pennsylvania.

H. pulchella Guér.—Form elliptical, finely pubescent, yellow, elytra each with an oval, basal, piceous spot and another much larger posteriorly two-thirds the length of the elytra. Thorax semicircular, base bisinuate, entire margin slightly reflexed, disc sparsely finely punctate. Elytra moderately densely punctured. Body beneath yellow, abdomen at sides often infuscate, surface sparsely punctate and pubescent. Length .12—.20 inch; 3—5 mm.

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The last ventral of the male is emarginate at tip, in the female simple. The two elytral spots may coalesce and form a continuous vitta.

Occurs from Pennsylvania to Texas.

H. fuscipennis Guér.—Form of *pulchella*, color yellow, elytra piceous or black. Length .18—.20 inch; 4.5—5 mm.

The elytra are a little more densely punctured than in *pulchella* and the pubescence somewhat more abundant. The under side is usually entirely yellow, but a specimen in Dr. Leconte's cabinet has the under side and legs entirely piceous, also two spots on the thorax. While it differs so decidedly in color I am unwilling to consider it distinct.

Occurs from Pennsylvania to Texas. Females only seen.

H. thoracica Guér.—Broadly oval, nearly as broad as long, black, thorax and antennæ yellow. Thorax as in *pulchella*. Elytra not densely punctured. Body beneath and legs black. Abdomen sparsely, rather coarsely punctate. Femora piceous, tibiæ and tarsi paler. Length .10—.14 inch; 2.5—3.5 mm.

The last ventral of the male is emarginate.

Occurs from Canada to Georgia.

CYPHON Payk.

This genus is so very closely allied to *Helodes* as to have been united with it by nearly all authors excepting the more recent. Possessing all the generic characters of *Helodes*, *Cyphon* differs in the form of the labial palpi in which the last joint arises from the end and not from the side of the preceding. As extended comparisons are already given of the genera any further repetition here is unnecessary.

The species are not numerous but present difficulties in their study from the flexibility of many of the usual specific characters. The following table will be found of considerable assistance while many of the difficulties will be noticed under the species themselves.

Joints 2—3 of antennæ short, their conjoined length usually less than that of the fourth.
- Thorax in front arcuate, prolonged slightly over the head, the margin reflexed. Joints 2—3 equal to four ..... **robustus.**
- Thorax truncate in front, not prolonged nor reflexed.
  - Form oblong, subparallel.
    - Joint three very short, shorter than second ..... **ruficollis.**
    - Joint three as long as the second.
      - Sides of thorax explanate ..... **brevicollis.**
      - Sides of thorax not explanate ..... **exiguus.**
  - Form oval, moderately robust, margin of thorax not explanate.
    - Entirely piceous, form regularly oval ..... **obscurus.**
    - Elytra with large discal spot red, form slightly oblong ..... **concinnus.**

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Joints 2—3 of antennæ very little shorter separately than the fourth, together always longer than the fourth, the third a little longer and more slender than the second.

Sides of thorax very distinctly explanate, species bicolored, thorax reddish-yellow, elytra piceous or black.....**collaris.**

Sides of thorax not or very feebly explanate, body above uniform in color but variable from piceous to testaceous.

Thorax more densely punctured at the sides than at middle.

Form regularly oval. Elytra ♀ not impressed.....**variabilis.**

Form oblong. Elytra ♀ bi-impressed.....**impressus.**

Thorax not more densely punctured at the sides.

Form oval, moderately convex.....**padi.**

C. robustus Lec.—Oblong oval, brownish, moderately shining, sparsely clothed with short, suberect pubescence. Head moderately punctate. Antennæ as long as half the body, piceous, three basal joints paler, joints 2—3 small, equal in length, the third a little more slender, the two together nearly equal to the fourth. Thorax a little more than twice as wide as long, when viewed from above nearly semicircular, apical margin concealing the head, lateral margins explanate and slightly reflexed, disc sparsely, sides a little more densely punctate. Elytra not wider at base than the thorax, sides moderately arcuate broader at middle, disc rather coarsely and moderately densely punctured, a vague sutural stria and three feeble traces of costæ. Sides of metasternum densely punctulate. Abdomen densely and finely punctulate over its entire surface. Length .20 inch; 5 mm.

This species bears a certain resemblance to *Microcara explanata*, but is easily known by its generic characters.

New York, Mr. Ulke.

C. ruficollis Say.—Oblong oval, piceous, thorax variable in color from red to piceous, surface finely pubescent. Head scarcely punctate. Antennæ piceous, three basal joints pale, joints 2—3 short, scarcely longer than half the fourth, the third much smaller than the second. Thorax nearly three times as wide as long, slightly narrowed in front, sides moderately arcuate, apex feebly emarginate, base bisinuate, margin very feebly explanate, surface sparsely punctate and a little more coarsely near the sides. Elytra a little wider than the thorax, coarsely and moderately densely punctured, form oblong, sides parallel. Body beneath finely, moderately densely punctured. Length .14—.16 inch; 3.5—4 mm.

The thorax varies in color from rufous to piceous, the intermediate forms having the middle more or less piceous while the sides are more or less broadly rufous.

Occurs from New York to Georgia and Kansas.

C. brevicollis Lec.—Oblong oval, brownish testaceous, sparsely clothed with yellowish, silken pubescence. Head not densely punctate, a vague impression each side above the base of the antennæ. The latter a little longer than half the body, second and third joints small, about equal in length, the third a little more slender, the two together shorter than the fourth. Thorax nearly three times as wide as long, slightly narrowed in front, sides feebly

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arcuate, apical and basal angles obtuse, apex emarginate, base bisinuate, disc moderately convex, margin explanate, surface very sparsely finely punctured at middle, at sides coarsely and moderately densely. Elytra a little wider than the thorax, oblong, nearly parallel, disc vaguely tricostate, surface coarsely but not densely punctured. Body beneath moderately densely punctate. Length .16—.18 inch; 4—4.5 mm.

The antennæ are piceous the three basal joints pale. The elytral punctures have a deceptive appearance of being transversely confluent, those at tip are however always finer and much less dense. Specimens occur with the body beneath and thorax piceous, another in Dr. Leconte's cabinet is black with the thorax red, and others are entirely pale luteous.

Occurs from Oregon to California.

C. exiguus n. sp.—Oblong oval, piceous, thorax sometimes rufous, surface sparsely pubescent. Head nearly smooth. Antennæ as long as half the body, joints 2—3 small, together equal to the fourth, the third as long as but more slender than the second. Thorax nearly three times as wide as long, scarcely narrowed in front, sides very feebly arcuate, margin not explanate, apex truncate, base feebly bisinuate, surface finely and sparsely punctate. Elytra a little wider than the thorax, oblong, parallel, rather finely not densely punctate. Body beneath finely sparsely punctate. Length .12 inch; 3 mm.

Resembles *ruficollis* but is smaller, the sides of the thorax not explanate and the two joints of the antennæ above noted longer.

Occurs in the Mariposa region of California.

C. concinnus Lec.—Oblong oval, black, elytra with large discal, subbasal red space, moderately shining, sparsely finely pubescent. Head very sparsely, rather finely punctate. Antennæ half as long as the body, black, three basal joints paler, joints 2—3 small, equal in length, third a little more slender, the two together a little shorter than the fourth. Thorax nearly three times as wide as long, apex slightly emarginate, sides feebly arcuate, anterior angles distinct, side margin gradually declivous, not explanate nor reflexed, surface sparsely punctate. Elytra wider at middle than the thorax, moderately densely punctate, and very vaguely costate. Sides of metasternum and first three abdominal segments coarsely but sparsely punctured, last two segments very finely and sparsely punctured. Length .14—.16 inch; 3.5—4 mm.

An easily known species by its coloration, but specimens sometimes occur entirely testaceous.

Occurs near San Francisco, California, and western Nevada.

C. obscurus Guér.—Ovate, moderately convex, sparsely pubescent, black, shining, antennæ and legs usually entirely pale. Head smooth. Antennæ pale yellow with the terminal joints sometimes darker, structure as in *concinnus*. Thorax as in *concinnus*, surface sparsely punctulate. Elytra not densely punctate, surface very vaguely tricostate. Sides of metathorax and abdomen moderately coarsely, not very densely punctate, last ventral segment smoother. Length .12—.14 inch; 3—3.5 mm.

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The color of the legs varies, they are usually yellow but the femora are often darker, even piceous. On the elytra the faint costæ are sometimes absent.

This species has been known as *pallipes* Lec., but I have no doubt of the identity of this and *obscurus*.

Occurs from Canada to Georgia.

C. collaris Guér.—Oval, slightly oblong, piceous black, shining, head in front, thorax, base of antennæ and legs partly, reddish-yellow. Front sparsely and finely punctate, occiput piceous more densely punctured. Antennæ half the length of the body, piceous, basal joints pale, third joint a little longer than the second and as broad, these two together a little longer than the fourth. Thorax nearly three times as wide as long, slightly narrowed toward the front, anterior angles rounded, posterior rectangular, sides distinctly explanate, especially near the posterior angles, surface very sparsely and indistinctly punctate and finely pubescent. Scutellum rufous. Elytra a little wider than the thorax, sides gradually arcuate, disc moderately convex, suture not thickened, surface rather coarsely and moderately densely punctate and finely pubescent. Body beneath sparsely and moderately coarsely punctate. Legs variable in color from entirely piceous to pale. Length .14—.16 inch; 3.5—4 mm.

Male.—Elytra without impressions, fourth ventral with a vague concavity at its middle.

Female.—Disc of elytra with a post-scutellar flattened or slightly depressed space of irregularly oval form, divided by the suture, the punctuation in this region being almost obsolete; sides of elytra at middle with a smaller but deeper impression also feebly punctate.

This species resembles some of the forms of *ruficollis*, but differs in the structure of the antennæ and otherwise.

Occurs from Massachusetts to Georgia. The females seem to be very rare.

C. variabilis Thunb.—Form oval, slightly oblong, moderately convex, pubescent, color variable from piceous to pale brown or testaceous. Head moderately densely punctured but somewhat variable in its fineness. Antennæ a little longer than half the body, the outer joints usually darker. Thorax twice as wide as long, apex and base bisinuate, sides moderately arcuate, margin not explanate, disc moderately convex, surface sparsely punctured at middle, more densely and coarsely at the sides but variable in degree. Elytra a little wider than the thorax, about a fourth or a third longer than wide, sides regularly arcuate, disc moderately convex, subsutural costa moderately well marked, surface moderately densely punctured, the punctures rather fine and becoming less distinct toward the tip. Body beneath usually darker than above, abdomen finely alutaceous. Legs variable in color. Length .08—.14 inch; 2—3.5 mm.

As the name justly indicates, this species is very variable in many respects, the most important being size, color and punctuation.

The variation in size is probably the least important character,

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as the limit observed in our fauna is entirely within the usually expected or at least allowable extent, but the smaller forms are generally less distinctly sculptured and the sutural ridge of the elytra less marked.

In color the variation is from piceous to testaceous through all intermediate shades, the larger and better developed specimens are as a rule the darker colored. In the form known as *nebulosus* in our fauna, the sides of the elytra as well as the suture are darker than the disc, so that a coloration is seen resembling the well known varieties of *padi*. From the latter the punctuation of the sides of the thorax will always distinguish any of the forms of *variabilis*.

The punctuation of the entire surface is also somewhat variable as mentioned above regarding the smaller specimens. Independently of this the punctuation of the head and thorax vary in degree, so that the front and the side of the thorax from an ordinarily dense punctuation come to have a rugose and even granular aspect.

There do not appear to be any clearly dividing lines between any of the forms above observed, the one merging so gradually into the other as to leave no doubt as to the specific identity of all. No sexual differences have been observed.

In determining the specific identity of our species with that of Europe, comparison has been made with carefully named specimens sent by my friend Mr. A. Sallé of Paris, while the synonymy as far as our fauna is concerned, is the result of a study of a far greater mass of material than that used in our latest synopsis twenty-six years ago.

Closely allied to *variabilis* is *coarctata* also European, but said by Guérin to occur in our fauna. I have never seen any specimens at all resembling those sent me by Mr. Sallé. It is possible that the species may yet be found here, when it will be known by its general resemblance to *variabilis* with the elytra sub-tricostate as in *obscurus*.

The distribution of this species in our fauna is very wide, extending from the Hudson's Bay region to Florida and Texas, and in the west to Vancouver.

C. padi Linn.—Ovate, moderately convex, finely pubescent, piceous or black, elytra with the tip pale yellow, the spot sometimes well defined, often extending forward in an irregular vitta. Head densely punctate. Antennæ half the length of the body, piceous, the basal joints pale. Thorax more than twice as wide as long, slightly narrowed in front, sides feebly arcuate, surface very sparsely and finely punctulate even at the sides. Elytra wider than the

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thorax at base, form regularly oval, moderately convex, subsutural costa very feeble, surface moderately densely punctate and very sparsely pubescent. Body beneath usually dark in color but variable, abdomen sparsely punctate and alutaceous. Legs variable, femora piceous, tibiæ pale. Length .08 inch; 2 mm.

This species varies in color but is known by its comparatively smooth thorax. The fully colored specimens are entirely piceous above and beneath, except the tip of the elytra which has a well limited pale yellow spot. As the specimens become generally paler the spot extends forward in an irregular vitta as in certain forms of *variabilis*. I have never seen any pale testaceous forms of this species, unless several small specimens of otherwise doubtful nature be referred here which I have seen from Florida.

Occurs from Massachusetts to Indiana.

C. impressus Lec.—Oblong oval, slightly broader behind the middle, feebly convex, rufo-piceous, pubescent. Head densely punctulate. Antennæ half the length of body, pale. Thorax twice as wide as long, slightly narrowed in front, apex and base bisinuate, sides feebly arcuate, margin not explanate, surface densely punctured, even more so at the sides. Elytra scarcely wider at base than the thorax and broader behind the middle, sides feebly arcuate, disc subdepressed, subsutural costa moderately well marked, surface less densely punctured than the thorax but near the base a little more coarsely, near the apex more finely and sparsely. Body beneath sparsely punctulate and alutaceous. Legs pale. Length nearly .10 inch; 2.5 mm.

Of this species two females only are known to me. They have on the disc of the elytra, a short distance behind the scutellum, an arcuate shallow impression which crosses the suture, on each elytron about one-third from the apex is a deeper impression placed obliquely, the two converging posteriorly toward the suture approaching it very closely.

There is no species in our fauna with the thorax as densely punctured as this one.

Occurs at Tampa, Florida.

Tribe V.—*Placonychini.*

Front narrow, antennæ closely inserted. Anterior coxæ without trochantin. Tarsi slender, claws with slender membranous lobes arising from the base. (Pl. I, fig. 16 c).

In these few words a tribe is suggested containing a single species possessing the oral organs of the Eubriini, a prosternum approaching the *Helodini* with a structure of tarsal claw entirely unique in the family.

The genus is characterized as foll

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PLACONYCHA n. g.

Head as in *Ectopria*. Eyes equal in the two sexes. Antennæ pectinate ♂, serrate ♀, very like *Ectopria*. Ligula with four processes, shorter and less slender than in that genus. Palpi similar to *Ectopria*. Prosternum short in front of the coxæ, prolonged narrowly between them and not elevated. Anterior coxæ moderately prominent, higher than the prosternum and without trochantin. Mesosternum of moderate width, depressed and oblique. Posterior coxæ suddenly but moderately dilated internally and contiguous, very narrow externally. Legs as in *Ectopria*. Tarsi slender, not lobed nor dilated, joints 1—4 gradually decreasing in length, fifth a little longer than the first and with a distinct bisetose onychium. Claws slender and simple at tip, moderately dilated at base, and with a slender membranous appendage arising from the base nearly as long as the claw.

This genus has the narrow front of the Eubriini and a general similarity of structure otherwise, but the form of prosternum approaches the Helodini. The claws are however entirely anomalous in the family, the presence of the membranous lobes being a very disturbing element. The thorax by its explanate and rather widely reflexed border recalls the form seen in certain *Telephori*, with which the genus has no affinity.

P. Edwardsii Lec.—Broadly oval, feebly convex, piceous, elytra luteous ♂, piceous ♀, sparsely finely pubescent. Thorax twice as wide as long, narrower in front, apex arcuate, slightly prolonged over the head and with slightly reflexed edge, base bisinuate, sides moderately arcuate, margin explanate and rather broadly reflexed, color piceous, anterior angles pale, translucent, hind angles broadly rounded, disc moderately convex at middle, shining, very sparsely punctulate. Scutellum moderate in size, obtuse at tip. Elytra broadly oval, with vague grooves irregularly punctured, the intervals narrower than the grooves and very sparsely punctate. Body beneath piceous, opaque, sparsely pubescent. Legs testaceous, femora darker. Length .14 ♂—.20 ♀; 3.5—5 mm. (Pl. I, fig. 16).

Male.—Elytra luteous. Antennæ pectinate, a little longer than half the body, first joint short, oval, second very short, transverse, joints 3—10 gradually longer, each bearing a process anteriorly which arises from the base of the third, the middle of the fourth, subapical in the fifth and apical in the others, eleventh joint twice as long as the tenth and slightly curved. (Pl. I, fig. 16).

Female.—Elytra piceous. Antennæ not as long as half the body. Joints 1—2 as in the male, third elongate triangular, nearly as long as the next two together, 4—10 triangular, broader than long, eleventh oval, obliquely emarginate and with the tip acute. (Pl. I, fig. 16 a).

The females are rare and occur in the proportion of one to ten of the males.

Occurs in California, at and north of Santa Barbara, (H. Edwards).

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EXPLANATION OF PLATE I.

1.—*Macropogon piceus* Lec., 1 a, tarsus of same, 1 b, base of antenna of *M. testaceipennis* Motsch., 1 c, same of *M. rufipes* Horn.
2.—*Stenocolus scutellaris* Lec.
3.—*Anorus piceus* Lec., 3 a, hind tarsus.
4.—*Anchycteis velutina* ♂ Horn, 4 a, antenna of ♀, 4 b, hind tarsus.
5.—*Arœopus monachus* Lec., 5 a, tarsus, 5 b, head and thorax from front.
6.—Antenna of *Ptilodactyla serricollis* Say, 6 a, hind tarsus.
7.—Under side of *Eucinetus terminalis* Lec., 7 a, hind leg.
8.—*Ectopria nervosa* ♀ Mels., 8 a, 8 b, front of ♀ and ♂, 8 c, 8 d, two forms of male antenna, 8 e, antenna of ♀, 8 f, tarsus, 8 g, claw of ♂, 8 h, of ♀.
9.—Claws of *Eubria palustris* Germ., a, the anterior, b, posterior.
10.—*Acneus quadrimaculatus* Horn, 10 a, antenna ♀ ?, 10 b, tarsus, 10 c, claw.
11.—Thorax beneath of *Prionocyphon*, a, *limbatus*, b, *discoideus*.
12.—Antenna of ♂ *P. discoideus* Say.
13.—Claws of *Odontonyx trivittis* Germ.
14.—Posterior tarsi of *Helodes*.
15.—*Scirtes Troberti* Guér.
16.—*Placonycha Edwardsii* ♂ Lec., 16 a, antenna of ♀, 16 b, tibia and tarsus, 16 c, claws and appendages.
17.—Mentum, ligula and palpi of *Helodes*, (after Duval).

* In these two species the European synonymy is omitted as not pertinent to the present essay.

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Notes on some genera of CERAMBYCIDÆ with descriptions of new species.

BY GEORGE H. HORN, M. D.

The following pages contain the results of a study of several parts of the Cerambycide series which have been at all times troublesome, more from the scattered and inadequate descriptions than from the number of the species. In the first few pages the tribe Acanthoderini as defined by Dr. Leconte, (Classif. p. 336), is considered in a synoptic manner with tables of the genera and species with descriptions of those only which are believed to be new, the tables being full enough to enable the others to be readily distinguished. Following this part are several isolated genera with descriptions of new species.

The tribe Acanthoderini is divided into two sub-tribes in the following manner:

Scape of antennæ clavate.....ACANTHODERINI.
Scape of antennæ nearly cylindrical.....ACANTHOCININI.

Sub-tribe I.—ACANTHODERINI.

Scape of antennæ short, clavate, the entire member not longer or very little than the body and not differing notably in the sexes, fringed beneath. Anterior tarsi of ♂ broader than in the ♀, fringed at the sides with moderately long hair.

After a careful examination of our species I see no reason for differing from the view expressed by Dr. Leconte, (Classif. p. 337), that they constitute but one genus. It is true that *quadrigibba* has subcostate elytra so that the sutural region appears broadly grooved and the tarsi are more dilated than the other species, but these characters seem hardly to have generic value. Lacordaire has placed this in the genus *Psapharochrus* Thoms., to which he has also erroneously added *decipiens*. Our species are all considered to belong to

ACANTHODERES Serv.

Four species occur in our fauna which are known by the following differences:

Sutural region of elytra vaguely grooved, the groove limited on each elytron by a feeble costa.
Elytra with moderately broad transverse band of white in front of middle broadly interrupted at the suture.....**quadrigibba** Say.

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Sutural region not grooved.

Elytra with moderately broad oblique space of whitish pubescence extending from the humeri to suture.....**peninsularis** n. sp.

Elytra without whitish space but with a distinct M-shaped black mark behind the middle on each.

Base of elytra irregular, an oblong obtuse umbone at middle of base. Smaller species.....**decipiens** Hald.

Base of elytra regularly convex, without umbone. Large species. **Morrisii** Uhler.

These belong to the Atlantic fauna except *peninsularis* which is from Lower California.

A. peninsularis n. sp.—Form moderately robust as in *Morrisii*, piceous, clothed with brownish pubescence. Head coarsely but very distantly punctate, clothed with brownish pubescence, on the occiput very much paler. Antennæ brownish, each joint with two rings of cinereous pubescense. Thorax twice as wide as long, strongly angulate at the sides, surface coarsely and deeply punctured clothed with variegated brownish pubescence, disc bituberculate and a carina extending from apical margin to middle. Elytra with coarse deep punctures near the base which become more distant and less deep posteriorly, surface clothed with brownish pubescence variegated with darker and paler spaces, and with a broad oblique cinereous spot extending from the humeri toward the suture and two slightly oblique dark spaces behind the middle. Body beneath and femora sparsely clothed with cinereous pubescence, tibiæ annulate. Length .48—.64 inch; 12—16 mm.

This species has nearly the form of *Morrisii* but is even more robust, its markings approaching those of *quadrigibba*. It belongs to a group of species occurring along the west coast of Mexico, many examples of which I saw in the collection of Mr. H. W. Bates, but differs from them all. I cannot, however, suggest any comparisons and leave further remarks to Mr. Bates to whom the species is known.

Occurs in the Peninsula of Lower California.

Sub-tribe II.—Acanthocinini.

The scape of the antenna is in the form of a very elongated cone, very little broader externally.

The genera form the following groups:

Lateral tubercle of thorax at the middle. Tarsi broad.....Lagochiri.

Lateral tubercle behind the middle. Tarsi slender except in *Mecotetartus*.

Females without elongated ovipositor.....Liopi.

Females with elongated ovipositor.....Acanthocini.

The group *Dectes* has been united with the *Liopi*.

Group I.—*Lagochiri*.

In this group the lateral tubercle of the thorax is at the middle. The females without ovipositor. The pro- and mesosternum are moderately broad, the former channeled, the latter truncate at tip.

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The tarsi on all the feet are broad, the first joint of hind tarsus not quite as long as the next two. The antennæ are not ciliate.

The above remarks, it may be needless to say, are applicable to the genera of our fauna only. These are known as follows:

Lateral spine of thorax very prominent, the disc tuberculate, antennæ much longer than the body ..... **Lagochirus.**

Lateral spine obtuse, disc not tuberculate, antennæ not longer than the body in either sex..... **Cœnopœus.**

In the males of both genera the sixth joint of the antennæ is prolonged inwards and with a brush of hairs in *Lagochirus*, which has also the anterior tarsi dilated and fimbriate and the same tibia fimbriate within near the tip.

Cœnopœus is founded on *Leptostylus Palmeri* Lec., the reasons for its position will be found further on.

LAGOCHIRUS Erichs.

A genus composed of species of moderately large size, represented in our fauna by two forms occurring on our sub-tropical borders, the one in Florida the other in Lower California, distinguished in the following manner:

Punctures of elytra barely attaining the middle, humeral region submuricate, disc with very evident rows of short, erect scale-like hairs. **araneiformis** Linn.

Punctures extending to apical fourth, humeral region simply punctured, disc with feeble traces of tufts..... **obsoletus** Thoms.

CŒNOPŒUS n. g.

Allied to *Lagochirus* differing as follows: Antennæ as long as the body ♀, a little longer ♂, not ciliate beneath, first joint extending to the middle of the thorax, second small, third equal to first, joints 4—10 gradually decreasing in length, joints 3—4 together a little shorter than 5—6—7 together, joint six prolonged inwards at its tip, without brush of hairs. Thorax transverse, hexagonal, moderately convex, surface irregular but not tuberculate, sides angulate at middle but not acutely spinous. Elytra oblong, moderately convex, slightly narrowing posteriorly, apices obtusely rounded. Legs robust, femora strongly clavate, pedunculate at base, the anterior a little shorter than the middle, the posterior shorter than the elytra. Tarsi moderately dilated, a little broader in the male but not fringed with hairs, the first joint a little shorter than the next two united. Last abdominal segment moderate, subtruncate ♂, very little longer ♀. Prosternum moderate between the coxæ, mesosternum broad, gradually declivous, nearly flat. Body finely pubescent, without erect hairs.

This genus is founded on *Leptostylus Palmeri* Lec., an insect very nearly as large but a little more convex than *Lagochirus araneiformis*. It has been removed from association with Leptostylus by its thorax being angulate at middle and by the structure of the tarsi. The antennal character of the male adds weight to its position near

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Lagochirus. From the latter it especially differs in the thorax less strongly angulate and not tuberculate, and by the antennæ being very little longer than the body even in the male. The form of the mesosternum also differs as well as the relative size of the femora.

In the female of the present genus the femora are less clavate and the thorax less transverse, and the angulation reduced to a feeble tuberosity.

C. Palmeri Lec., New Species, 1873, p. 233.—Antennæ black, each joint annulate with cinereous at base. Thorax sparsely coarsely punctured, surface irregularly clothed with very fine ochreous pubescence. Elytra about twice as long as wide at base, punctures moderately coarse, distant and irregular, surface without costæ or tubercles, piceous black with a large discal saddle-shaped space of ochreous pubescence extending a little behind the middle, behind which are large irregular spots of similar pubescence. Body beneath with extremely fine ochreous pubescence. Legs black with very fine black pubescence, tibiæ with a cinereous band at middle. Length .70 ♀—1.00 ♂ inch; 18—25mm. (Pl. II, fig. 1).

The elytral markings are described in somewhat different manner by Dr. Leconte but the meaning is the same, the fact being that the pattern is of the same type as in *Lagochirus*. In the one female I have seen the markings are suffused and the pattern indistinct.

Three specimens, Arizona.

Group II.—*Liopi*.

From the Lagochiri this group differs in having the thorax angulate, if at all, behind the middle and the tarsi slender.

The lateral tubercle of the thorax as observed by Dr. Leconte, varies in position from sub-median to sub-basal.

The table of the genera of this tribe as defined by Dr. Leconte, (Classification p. 338), requires some modification by the omission of *Lophopœum*? and *Sternidius*, and the introduction of *Mecotetartus*, (Eutessus Lec.).

The species placed provisionally in *Lophopœum* seems rather a *Pogonocherus* allied to *P. oregonus*, but with the lateral spine of the thorax as strong as in *P. crinitus*.

Sternidius is the equivalent of Liopus and those species formerly under the latter name are added to Lepturges.

Mecotetartus Bates, (Eutessus Lec.), is added from the next group, in which it had been doubtfully placed by Dr. Leconte, he knowing the males only, while the description by Mr. Bates published but a few months before had not yet reached this country.

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Dectes is also added to the group as its characters do not warrant a wider separation.

The genera now known are as follows:

Thorax feebly tuberculate or angulate at the sides a little behind the middle. Mesosternum broad, first joint of hind tarsi not longer, if as long, as the next two.....**Leptostylus.**

Thorax distinctly angulate, usually acutely tuberculate, or with a short spine behind the middle. Mesosternum triangular or narrow.

Antennæ without traces of ciliæ beneath, first joint of hind tarsus as long as the next two.

Prosternum narrow but not linear, body without erect hairs.....**Liopus.**

Prosternum linear, form cylindrical, elytra with erect hairs.....**Dectes.**

Antennæ distinctly ciliate beneath.

Hind tarsi short, first joint not as long as 2—3. Antennæ ♂ very long, the fourth joint longer than the entire body.....**Mecotetartus.**

Hind tarsi slender, first joint as long as the next three. Antennæ normal. Pro- and mesosternum very narrow.

Elytra without lateral carina.....**Lepturges.**

Elytra with distinct lateral carina.....**Hyperplatys.**

LEPTOSTYLUS Lec.

Under the remarks on *Liopus* I have given what seem to be the only characters separating these two genera. Among the species several characters have been observed which will serve to group them in a very natural manner.

In the male of *L. Palmeri* as observed by Dr. Leconte, the sixth joint of the antenna is prolonged inwards at the tip after the manner of our species of *Acanthocinus*. The pubescence of its surface is very fine and without trace of erect hairs. The elytra are not at all roughened and the punctuation coarse but very sparse, their apices obtuse. The legs are so very finely pubescent that they may be described as nearly naked, the tarsi are short and broad and finally the thorax is angulate at middle so that its form is hexagonal, resembling *Lagochirus*, without however being as strongly angulate as in that genus. That it is not a *Leptostylus* seems to me very evident from its characters, facies and size, and the only course is its removal from the genus to form a new one near Lagochirus.

L. albidus Lec., is remarkable in being the only species with short, erect pale hairs on the elytra. The legs are also fimbriate, the femora as well as the tibiæ and the antennæ are ciliate beneath on the first four joints. According to the table given by Lacordaire this species would form a new genus near PROBATIUS Thoms., but its general resemblance to *L. biustus* Lec., is such that I retain it here in preference to increasing the already too numerous genera of Cerambycidæ.

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The remaining species are quite homogeneous in their relationship and present little of note beyond the ordinary specific differences. They divide naturally into two unequal sets by the sculpture and ornamentation of the surface of the elytra. The larger number have the elytra more or less roughened with acute asperities or smaller tubercles which bear at their summits groups of short, black, scale-like hairs very nearly erect, while three of the species have no tubercles and no scale-like hairs.

The antennæ are longer than the body in both sexes in all the species except *aculifer* and *macula*, in these the third joint of the antennæ is very plainly longer than the fourth, while in all the other species the difference between these two joints is very small. The sexual character observed in the males of *aculifer* and *planidorsus* has not been noticed in any other species.

No changes in synonymy are proposed except that *interruptus* Hald. is *collaris* and not *macula*.

I think there is very little doubt that Say's *Lamia sexguttata* (Journ. Acad. v, 1825, p. 269), is the same as *commixtus* Hald.

Exocentrus biustus Chev., Ann. Ent. Soc. Fr. 1862, p. 249, for which that author quotes *Leptost. biustus* Lec. as a synonym, is probably not the same species.

L. fascicularis Harris, Trans. Bost. Soc. Nat. Hist. i, 1836, p. 88, pl. 1, fig. 9, placed under Leptostylus in the "Catalogus," is *Liopus xanthoxyli* Shimer.

Reduced to tabular form these sections are as follows:

Elytra with asperities or tubercles bearing at their summits short, black, scale-like hairs.....Section **A.**
Elytra without asperities and scale-like hairs.....Section **B.**

The latter being the smaller section the species will be first considered. They form the nearest approach to LIOPUS. The numbers give what seems a proper cabinet arrangement.

Prosternum as wide between the coxæ as the width of a coxal cavity. Elytra obliquely truncate at tip.....13. **macula** Say.
Prosternum narrower than a coxal cavity. Tips of elytra separately rounded.
Thorax sparsely punctured, the flanks at middle without punctures.
12. **perplexus** Hald.
Thorax moderately densely punctured, the flanks as densely punctured as the disc.....11. **collaris** Hald.

Section A contains a larger number of species which are also more troublesome to separate in a tabular form; in their arrangement not only the size but also the roughness of sculpture has been held in

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view, so that as we proceed from *commixtus* to *aculifer* the species become larger and may be assumed to be more perfect representatives of the genus, they are as follows:

Thorax densely punctured, elytra with densely placed coarse deep punctures.....10. **commixtus** Hald.
Thorax not densely punctured, elytral punctures not closely placed, often inconspicuous or concealed.
Legs hairy, antennæ slightly pilose beneath.....9. **albidus** Lec.
Legs not hairy, antennæ not pilose.
Surface of thorax not tuberculate, even, punctures regularly placed.
Elytra very indistinctly punctured especially at apex, the disc with angulate fascia behind the middle, the apices feebly obliquely truncate.....8. **biustus** Lec.
Elytra distinctly punctured over the entire surface, disc with acutely angulated fascia, apices slightly prolonged not obliquely truncate.....7. **parvus** Lec.
Elytra more distinctly punctured near the apex than at base, apices very obliquely truncate, disc with arcuate fascia at the declivity.....6. **arcuatus** Lec.
Surface of thorax more or less tuberculate and with the punctures irregularly placed and sparse.
Elytra feebly or not roughened with acute tubercles, antennæ in both sexes longer than the body, the joints three and four together not longer than 5—7 taken together.
Tips of elytra not prolonged, apices separately rounded, thorax with rather strong discal tubercles.....5. **nebulosus** n. sp.
Tips of elytra obliquely prolonged, apices obliquely truncate, thorax with very flat tubercles.
Elytra without rows of tubercles, a few only near the base, post-humeral oblique impression very feeble. Hind trochanters of ♂ slightly acutely prolonged.....4. **planidorsus** Lec.
Elytra with four distinct discal series of obtuse tubercles, post-humeral oblique impression well marked. Hind trochanters of ♂ not prolonged.
Thorax irregular but without denuded spaces or lines.
3. **terræcolor** n. sp.
Thorax with median fine carina denuded at apex, a short oblique line on each side at apical margin, often denuded.
2. **argentatus** Duval.
Elytra with asperities well marked, either as acute tubercles or ridges; antennæ scarcely longer than the body even in the male, joints three and four together equal in length to 5—8 together.
Hind trochanters of ♂ prolonged into a short but acute spine.
1. **aculifer** Say.

L. parvus Lec., New Species, 1873, p. 234.—Antennæ in both sexes longer than the body, joints 3—4 together about equal to the following three. Thorax subangulate behind the middle, the sides oblique in front, the apex slightly constricted, surface moderately densely punctured, with faint evidences of flat tubercles which are also punctured. Elytra moderately coarsely punctured

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from base to apex, a distinct oblique impression from the humeri, disc vaguely costulate, the costæ tuberculiferous, the tubercles with short, erect, black scales; surface clothed with dark cinereous pubescence, with a narrow, white, band acutely angulate to the front behind the middle; apices not obliquely truncate. Length .16—.24 inch; 4—6 mm.

These notes are intended to supplement the original description and are made from two finely marked specimens collected in Kansas and Texas. The general outline resembles *Hyperplatys*.

L. nebulosus n. sp.—Form moderately robust as in *aculifer* but more convex, surface with dark cinereous pubescence, elytra with a rather broad but indistinct, angulate band of paler pubescence at the middle and a dark spot each side. Antennæ ♂ a little longer than the body, joints 3—4 a little longer than the next three. Thorax about one-fourth wider than long, not narrowed at apex, sides slightly behind the middle with an obtuse tubercle limited in front and behind by a slight lateral constriction of the thorax, disc coarsely punctured, sparsely pubescent and with five moderately prominent tubercles, that at the centre being larger and more prominent. Elytra gradually arcuately narrowed at apical third only, apices separately rounded, disc moderately convex, not densely punctured, the punctures finer near the apex, surface finely tricostate, the costæ with distant tubercles with erect scale-like hairs, pubescence of surface not very dense, dark cinereous vaguely clouded, the basal fourth slightly paler and a moderately broad paler band angulate to the front at middle, and an irregular sooty spot in front of the outer ends of this band. Body beneath with cinereous pubescence, maculate. Femora cinereous, maculate, tibiæ at middle and tip annulate with black, tarsi cinereous, last two joints black. Length .50 inch; 12.5 mm.

This species is remarkable in having the middle umbone of the thorax quite strongly marked and the thorax less transverse than usual. The antennæ are less elongate than in *planidorsus* but more so than *aculifer*. The hind trochanters are simple.

One ♂, western Nevada, collected by H. K. Morrison.

L. terrsecolor n. sp.—Form of *aculifer*, densely clothed with luteous pubescence, elytra with faint darker cloud at the side and a common, narrow, arcuate fascia slightly behind the middle. Front nearly flat. Antennæ ♂ a little more than half longer than the body, joints maculate and annulate at the articulations. Thorax twice as wide as long, truncate at apex and base, sides very obtusely subangulate, disc moderately convex, the tuberosities scarcely evident, the central umbone indicated by a circle of large punctures, a row of coarse punctures along the apex and base and a few near the side. Elytra formed as in *aculifer*, apices obliquely truncate, disc with four rows of feeble tubercles which are larger near the base, a distinct oblique impression behind the humeral umbone, surface densely pubescent, sparsely punctate, the punctures a little coarser toward the sides. Body beneath very densely finely punctulate and densely clothed with cinereous pubescence with small denuded spots. Legs similarly pubescent. Length .34—.46 inch; 9—12 mm.

This species might be mistaken for an *aculifer* in which the asperities are feebly developed, but the thorax is differently tubercu-

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late, the antennæ of the male are much longer, the hind trochanters ♂ are not produced and the arcuate fascia of the elytra in a different position. I have adopted Newman's unpublished name for a Florida species which doubtless belongs to this, which I am by no means satisfied was properly referred to *transversatus* Chev., (Lec. Proc. Am. Philos. Soc. 1878, p. 414).

Three specimens ♂, Florida.

L. argentatus Duval.—Form narrower and less depressed than *aculifer*, surface densely clothed with greyish white pubescence, elytra with a slight cloud at the sides and a short transverse nearly black fascia crossing the suture at the declivity. Antennæ one and a half times the length of body ♂ and nearly as long ♀. Thorax distinctly subangulate at the sides, an obtuse tubercle above the angulation, disc with five flat tubercles, median line slightly elevated and denuded, surface densely clothed with greyish white pubescence and a short brown line on each side of middle beginning at apical margin sometimes denuded. Elytra with four rows of feeble tubercles, an oblique post-humeral impression, apices obliquely truncate. Body beneath less densely clothed than above. Length .38 inch; 9.5 mm.

Resembles *aculifer* but is more elongate as well as more convex. It differs in the less asperate surface, the longer antennæ and by the hind trochanter of ♂ not spiniform.

This species was originally described from Cuba. It occurs in Florida and also at Nassau, N. P.

LIOPUS Serv.

To this genus must be referred those species now included in our lists in Sternidius Lec. The vague manner in which Lacordaire describes the form of the mesosternum is misleading and caused the separation of this portion of the genus under a new name.

All the species referred to Liopus in the "Classification" and "Check List" should be placed in *Lepturges*, excepting *L. biguttatus* Lec., which is *Graphisurus pusillus* Kby., concerning which remarks will be found elsewhere.

Liopus is closely related to *Leptostylus*, but after a careful study of all the species in our fauna I find that *Liopus* has always an acute thoracic spine always behind the middle, the prosternum is usually narrow, the mesosternum gradually narrowed behind, truncate at tip and not dilated; the antennæ are always longer than the body and the joints from 5—11 are very nearly equal in length. *Leptostylus* has never more than a very obtuse tubercle on the side of the thorax a little behind the middle, the prosternum is broad and channeled, the mesosternum broader than long, more or less emarginate at tip and slightly dilated behind the coxæ; the antennæ are less slender

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and shorter than in *Liopus*, the outer joints becoming rapidly shorter than the third and fourth. The two genera are however very closely allied and very little would be required to close the gap between them.

L. Haldemani Lec., is remarkable for having the lateral tooth of the thorax very close to the base. The sixth and seventh joints of the antennæ are not only shorter than the fifth, but also a little shorter than the eighth and ninth.

The following table will enable our species to be distinguished:

Front flat, mouth in the same plane as the front.
Antennal joints 6—10 equal; elytra without angular mark posteriorly; sides of thorax arcuate, the spine small and acute. Elytra without erect scales.....**variegatus** Hald.
Front convex, mouth slightly retracted.
Antennal joints 6—10 equal; lateral spine of thorax at a distance from the base.
Elytra with distinct tufts of small, black, erect scales.
Sides of thorax in front of spine arcuate, the spine small, acute and abruptly formed.....**Wiltii** n. sp.
Sides of thorax oblique from the anterior angles to the tip of the lateral spine.
Form robust, pubescence pale cinereous, elytra with one broadly angulate band, (resembles *Leptost. biustus*).....**crassulus** Lec.
Form slender, pubescence brown, elytra with one band forming a broad angle and with a second band less distinct posteriorly.
fasciculatis Harris.
Elytra without tufts of erect scales.
Elytra with an acutely angular band behind the middle.
Surface finely punctured and behind the band almost impunctured.....**alpha** Say.
Surface more coarsely punctured, behind the band very distinctly so.....**cinereus** Lec.
Elytra without angular dark band, a feebly marked transverse band of whitish pubescence.....**punctatus** Hald.
Antennal joints 6—7 shorter than 8—9, lateral spine of thorax close to the base.
Elytra not densely punctured, surface with a moderately dense, dark cinereous pubescence variegated with lines of ochraceous.
Haldemani Lec.

By the above scheme *variegatus* approaches Leptostylus and *Haldemani* Lepturges.

L. Wiltii n. sp.—Form moderately robust, as in *variegatus*, surface moderately densely clothed with cinereous pubescence, elytra maculate with small black spots and two narrow fasciæ behind the middle. Head cinereous with small black spots, front slightly convex. Antennæ one-third longer than the body ♂, maculate, tips of the joints annulate with black. Thorax broader than long, surface moderately densely punctured but concealed by a mixed

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cinereous and brownish pubescence, sides arcuate before the spine which is small, acute and abruptly formed. Elytra densely clothed with grey pubescence, surface very distinctly but not densely punctured, and with five regular series of small black spots which are slightly tuberculate and bear small tufts of scale-like hairs, a larger black space at the side in front of middle and two fasciæ, one slightly behind the middle forming at the suture an acute angle, the other posterior and less oblique not attaining the suture. Body beneath and legs with whitish pubescence, the latter maculate. Length .36 inch; 9 mm.

Resembles *variegatus* in form but the elytra are a little more convex, it differs especially in the more convex front and the presence of erect scales on the elytra. The characters of the table will distinguish it from those which follow.

One specimen ♂, Texas, kindly given me by Mr. Chas. Wilt to whom it is dedicated, whose many kind donations to my cabinet have been of great assistance in the prosecution of my studies.

L. crassulus Lec., New Species, 1873, p. 235.

I have referred to this species some forms collected in Texas by Mr. Schwarz, which are as follows:

Elytra with faint oblique discal impression, surface clothed with cinereous pubescence and with moderately coarse punctures which gradually become effaced toward the tip which is feebly obliquely truncate, disc very faintly tricostate, the costæ with distant faint tubercles which bear on their summits scale-like hairs, external to the faint costæ are two other rows of distant darker tubercles, the sutural elevation also tuberculate, at the apical third is a common, arcuate, narrow, black fascia convex to the front, exterior to which is a short oblique line. Length .26 inch; 6.5 mm.

The type specimen of this species from Lower California is somewhat shorter and the surface slightly abraded. The costæ are very much feebler and the darker spots less evident. The arcuate fascia exists in a feeble trace but its position is sufficiently well marked. Either form bears a considerable resemblance to *Leptostylus biustus*, and they approach that genus in having a wider pro- and mesosternum than is usual in *Liopus*.

With this note of the differences I leave for future collections in the Peninsula the settlement of the question of the identity or not of the two forms.

L. dorsalis White, Brit. Mus. Catal. 1855, p. 382.—Pale cinereous brown; eyes above considerably separated, at the base of the antennæ and behind them two impressed lines forming a cross; thorax above varied with cinereous; elytra very thickly punctured; a large ash-colored squarish irregular mark before the middle and with projecting corners, a spear-shaped cinereous mark near the tip; the tip notched on each side near the suture. Length 4 lines.

New York, (Salem).

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I reproduce the description given by White. I am unable to recognize it either specifically or generically. It may be a Pogonocherus.

MECOTETARTUS Bates.

M. antennatus Bates, Trans. Ent. Soc. London, 1872, p. 213; *Rutessus asper* Lec., Classif. 1873, p. 339; New Species, pp. 235—236.

Occurs from the Peninsula of California to Chontales, Nicaragua.

DECTES Lec.

D. spinosus (Say).

I place Dectes here in preference to making it a distinct group as the prosternum is not narrower than in several Lepturges, and the only characters remaining are the cylindrical form and erect hairs on the elytra which seem too feeble to separate it in a group by itself. It is therefore placed where Lacordaire left it, but I am unable in our species to see the carina on the outer side of the antenna of which he speaks.

D. texanus Lec., is not sufficiently different from *spinosus* to be retained as a distinct species.

LEPTURGES Bates.

The species here included are those in which the antennæ are fimbriate beneath with very short hair, and the sides of the thorax angulate near or in front of the base. The pro- and mesosternum are both very narrow, linear and barely wide enough to separate the coxæ. The fimbriæ on the lower face of the antennæ are, at most, short and inconspicuous, and in some specimens I have seen are almost entirely wanting. The tarsi are slender, the first joint of the posterior pair being as long as the following joints united.

As thus defined the genus contains not only those referred here by Dr. Leconte, (Classif. p. 338), but also those considered Liopus, (see also Check List, p. 91), *L. biguttatus* Lec., is however a Graphisurus.

The species of the Amazons are divided by Mr. H. W. Bates in two sections, which apply equally to those of our fauna, these are:

Section A, lateral prominence of the thorax rather broad and very close to the base.

Section B, lateral prominence more slender and acute, the tip recurved, distant from the base.

In A the posterior border of the lateral tooth slopes obliquely to the basal margin of the thorax.

In this section I find one species belonging, SYMMETRICUS Hald., to which must be referred as synonyms *pictus* (Pl. II, fig. 2), and *angulatus* Lec., the former being a very perfectly marked specimen, the latter contains those with the markings suffused.

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In B the tooth is acute, spiniform at tip and recurved, the thorax rather suddenly constricted behind it so that the posterior border of the tooth does not approach the base obliquely.

The species are more numerous than in A and in this respect reverse the condition of the Amazon forms.

Elytra fasciate.
The fascia behind the middle, incomplete, broadly interrupted by the suture. (Pl. II, fig. 3).....**signatus** Lec.
The fascia broad, black and entire, oblique on each elytron, tip not black. (Pl. II, fig. 4).....**quercí** Fitch.
The fascia broad, black and entire, transverse, the apex also black. (Pl. II, fig. 5).....**facetus** Say.
Elytra cinereous, maculate on each with six round black spots, thorax with four spots. (Pl. II, fig. 6).....**regularis** Lec.

L. symmetricus Hald., makes the nearest approach to Liopus. The other species, *querci* and *facetus* particularly, lead to Hyperplatys.

HYPERPLATYS Hald.

In well preserved specimens the antennæ are distinctly fimbriate beneath. The pro- and mesosternum are narrow as in Lepturges. The elytra are flattened on the disc, the sides abruptly declivous and limited by an acute ridge, the tip is obliquely emarginate, the outer angle of the emargination more or less spiniform. The first joint of the hind tarsi is as long as the three following together.

This genus is more closely related to Lepturges than to Liopus near which Lacordaire places it, and whether Lepturges is really distinct can only be determined by a study of Mr. Bates species.

The species as at present known are distinguished in the following manner:

Body above maculate.
Elytra twice as long as wide at base. Antennæ in both sexes twice (or more), as long as the entire body.....**aspersus** Say.
Elytra broader, not twice as long as wide. Antennæ even in ♂ not twice as long as the body.....**maculatus** Hald.
Body above black.
Elytra as in *maculatus*, the outer angle of the tip prolonged in a longer spine. Antennæ not twice as long as the body.....**femoralis** Hald.

The last may possibly be a variety of *maculatus*.

Group III.—*Acanthocini.*

There is no character separating this group from the Liopi except the presence of an ovipositor in the female.

The genera here admitted do not differ from those given in the "Classification" (p. 339), except the removal of *Mecotetartus* (Eutessus) and the division of *Graphisurus*.

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They may be known as follows:

Body above with erect hairs beside the pubescence.
Mesosternum broad; antennæ not much longer than the body and not ciliate beneath except feebly on the scape.....**Urographis** n. g.
Mesosternum narrow; antennæ twice as long as the body and very slender, ciliate beneath.....**Graphisurus.**
Body above without erect hairs.
Mesosternum moderate; antennæ very long, joints 3—4 at least, densely fringed beneath with short hairs.....**Acanthocinus.**

The first two genera belong to the Atlantic region, the last has representation on both sides of the Continent.

UROGRAPHIS n. g.

The species here included are those which form the genus *Graphisurus* as defined by Lacordaire and all authors who have preceded him since the time of Kirby. Many of the differences between this and the true Kirbyan genus have already been given, others are as follows:

Antennæ moderately robust, nearly equal in the sexes, very little longer than the body, joints 3—11 gradually decreasing in length, the first and third with a few ciliæ beneath. Prosternum moderate in width, channeled, mesosternum broad, slightly dilated at tip and emarginate. Elytra emarginate at tip. Thorax angulate at the sides a little behind the middle, not prolonged in a spine.

Females with a moderately long ovipositor, the fifth ventral segment also prolonged to an extent nearly equal to the ovipositor and deeply cleft (*fasciata*), or triangularly emarginate (*triangulifera*).

The males of *fasciata* have the anterior and middle tarsi broader than in the female and ciliate at the sides, while the tarsi do not especially differ in *triangulifera*.

U. triangulifera Hald., Trans. Am. Phil. Soc. x, p. 45; Lec. Journ. Acad. 1852, ii, p. 174.

Ohio to Missouri, Georgia and Texas.

U. fasciata De Geer, Mém. v, p. 114, pl. 14, fig. 7; Lec. loc. cit. p. 175; *despectus* Lec. Agass. Lake Superior, p. 234; *pusillus* ‡ Lec. Journ. Acad. 1852, ii, p. 175.

The form known as *despectus* (*pusillus* ‡), is the smaller form with the anterior oblique dark band wanting.

Very widely distributed.

GRAPHISURUS Kby.

There is no genus in the present tribe about which there is as much misconception and real error as the present. The mistake has doubtless arisen from an erroneous determination of Kirby's typical species and to make further remarks clear I copy his description:

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224. ACANTHOCINUS (*Graphisurus*) PUSILLUS Kirby. Length of body 4¼ lines. A single specimen taken in the journey from New York to Cumberland House. This species is one of the most minute of the Capricorn tribes. Body linear, black, but covered with a coat of whitish decumbent hairs, which appears more or less sprinkled with black dots. Head longitudinally channeled; antennæ mutilated in the specimen but those joints that remain are white at the base; prothorax short, armed on each side towards the base with a short sharp spine, punctured with scattered punctures; elytra punctured especially towards the base, mottled and speckled with brown, with an oblique band a little beyond the middle, apex of the elytra rounded; podex and hypopygium, or last dorsal and ventral segments of the abdomen elongated, so as to defend the base of the ovipositor which is exserted, causing the insect to appear as if it had a tail; the hypopygium is emarginate; thighs much incrassated at the apex.

The size of the above described insect, the armature of the thorax, the oblique mark posteriorly, and the entire apices of the elytra and the ovipositor exserted, are all characters to which but one species in our fauna responds, *Liopus biguttatus* Lec., and this would have been referred to its correct position had Dr. Leconte known the female.

Accepting this as Kirby's type of the genus, the other species must be known by a new generic name and Lacordaire's description must be taken to apply to the latter.

In brief GRAPHISURUS is in all respects a *Lepturges* in which the lateral spine of the thorax is at a distance from the base, sharp and recurved, the elytra with sparsely placed erect hairs, and the female with an ovipositor about one-third the length of the body.

The antennæ are ciliate beneath, the pro- and mesosternum narrow and the first joint of hind tarsus elongate. In the male the antennæ are fully twice the length of the body, joints 3—7 equal in length, 8—11 gradually increasing, while in the female the antennæ are one and a half times the length of the body, the joints 3—11 equal in length. The male femora are also more clavate than in the female.

In the other two species until now included in Graphisurus, the antennæ are but little longer than the body in either sex and with few ciliæ on the first and third joints beneath, the joints 3—11 gradually decreasing in length as in Leptostylus, and from the comparative feebleness of the thoracic spine I consider these as forming a genus in this group parallel with Leptostylus, while Graphisurus is the parallel of Lepturges, in the Liopi.

G. pusillus Kby., Fauna Boreali-Americana iv, p. 169; *biguttatus* (*Liopus*) Lec. Journ. Acad. 1852, ii, p. 172.

Occurs from Canada to Pennsylvania, not common.

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ACANTHOCINUS Steph.

This genus reproduces the characters of *Urographis* in great part but differs in the following:

Antennæ one-half longer than the body ♀, three times as long in the ♂ or even longer, joints 3—4 and in some the next two hairy beneath. Thorax with a moderately strong spine at the side a little behind the middle. Elytra without erect hairs, clothed with the usual recumbent pubescence.

The males have an additional, exsert, dorsal, abdominal segment, valve-like, broader at tip and emarginate, the normal fifth segment is triangularly emarginate as in the other genera of this group. This additional segment is less exsert in *nodosus*. In the other two genera the segment may be seen but is always retracted.

The antennæ of the male present two forms, the one in which the joints are simple, the other with the fourth (*nodosus*), or fifth (*spectabilis*), joint dilated within at its tip. In the female the joints 3—11 are nearly equal in length but there is a great variation in the males. In some of the latter, although the antennæ may be much longer than the body, the joints 3—11 are also nearly equal, but in others, particularly those with very long antennæ, the four outer joints are much longer. This is especially observable in *nodosus* and *spectabilis*.

As already observed by Dr. Leconte our species seem to tend toward *Eutrypanus*. In fact one of them has been re-described under that name.

Our species are four in number and separate very easily in the following manner:

Elytra punctured beyond the middle. Antennæ of ♂ not nodose.
  Elytra not distinctly costulate..... .....**obsoletus** Oliv.
  Elytra distinctly tricostulate.....**obliquus** Lec.
Elytra scarcely at all punctured beyond the middle. Antennæ ♂ nodose.
  Elytra coarsely punctured at base, surface with three dark oblique bands. **spectabilis** Lec.
  Elytra feebly punctured at base, surface with linear and arrow-shaped velvety spaces.....**nodosus** Fab.

The first two are smaller species, the last two large.

Their distribution is as follows:

A. OBSOLETUS widely distributed in the northern part of the Atlantic region.

A. NODOSUS, Middle States to Florida.

A. OBLIQUUS, Kansas, New Mexico, Utah and California.

A. SPECTABILIS, New Mexico to Oregon and Vancouver.

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This last follows the distribution of *Melanophila miranda*, *Asida elata* and several *Eleodes*; *Eutrypanus princeps* Walker, Nat. in Vanc. ii, p. 331, is synonymous with it.

In consequence of the changes in synonymy caused by the preceding review, it has been thought best to place the species in the clearest possible light by a complete synonymical list which gives at a glance the result of the study. Certain errors have been observed in the "Catalogus" of Gemminger and Harold, which are noted in the proper places.

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LAGOCHIRUS Erichs.

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LIOPUS Serv.

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UROGRAPHIS n. g.

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GRAPHISURUS Kby.

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ACANTHOCINUS Steph.

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bifidator ♀ Fab. Syst. El. ii, p. 286.

ŒME Newm.

O. striangulata n. sp.—Piceous, subopaque, pubescence very short and inconspicuous. Head densely punctured, thorax a little wider than long, sides divergent from the apex, and at apical fourth suddenly tubularly constricted, the angles in front of constriction broadly rounded, disc feebly convex, a very short median line in front terminating in a transverse impression in front of the middle which is limited behind by a transverse plica, surface densely punctured. Elytra not wider than the thorax, surface with three feebly elevated lines on each and densely finely punctured. Body beneath moderately densely punctured. Length .76 inch; 19 mm. (Pl. II, fig. 7).

The specimen before me is a male, the antennæ are a little longer than the body, the scape is moderately stout and finely tuberculate, joints 3—6 are armed beneath with small acute spines although very small on the sixth joint. The abdomen is very small and much retracted, the last segment broadly emarginate.

One specimen, Parowan, Utah; Dr. Edward Palmer.

The thoracic sculpture, as well as its form, distinguishes the species of Œme, as follows:

O. RIGIDA Say, has the thorax densely punctured, a moderately impressed median line.

O. COSTATA Lec., has the thorax punctured and with a smooth median vitta.

O. STRANGULATA Horn, has the thorax very much more suddenly constricted, and a transverse impression and plica on the disc.

ÆTHECERUS Chev.

The type of this genus is the species described by me as *Arhopalus Wilsonii*, (Proc. Acad. 1860, p. 570, pl. viii, fig. 4), to which Lacordaire (Genera ix, p. 184), has added a second, while a third remains to be described. They are as follows:

Thorax broader than long, elytra truncate at tip.
Elytra feebly shining, the punctures near the apex not densely placed.
Thorax not maculate..... **Wilsonii** Horn.
Elytra opaque, punctures near the apex very fine and very densely placed.
Thorax with two discal black spots..... **Hornii** Lec.
Thorax as long as broad, elytra rounded at tip..... **latecinctus** n. sp.

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The first two species resemble each other very closely but the second has the bands narrower, the posterior more oblique and rather widely bordered with very dark brown or nearly black. In both the antennæ are pale brown. They are best distinguished by the characters given in the table. It may also be noticed that the antennal tubercles are strong in *Wilsonii*, and almost wanting in *latecinctus*, and very feeble in *Hornii*.

Æ. latecinctus n. sp.—Dark brown, sparsely clothed with fine pubescence, elytra with a broad basal and a median transverse band yellow. Antennæ slender, brownish, each joint darker at tip. Thorax globose, truncate at apex and base, as long as wide, densely punctured. Elytra obtusely rounded at tip, rather coarsely and densely punctured, a broad yellow basal band, sometimes interrupted by the suture, usually joining the epipleuræ and extending backward, a second broad band at middle, transverse and usually narrowed at the suture. Body beneath paler than above and sparsely pubescent. Legs brownish ♀ or piceous ♂. Length .40—.42 inch; 10—10.5 mm.

Much smaller than the other species. The male has very slender twelve-jointed antennæ which are more than twice the length of the body, those of the female are eleven-jointed and not longer than the body.

Collected at Tucson, Arizona, and given me by Mr. Henry Edwards.

A. Wilsonii Horn, occurs in Texas; *Hornii* Lac., in Florida.

CYLLENE Newm.

Antennæ with joints 3—5 spinous at tip.
  Thorax and abdomen uniformly pubescent. Prosternum wide between the coxæ but not prolonged. Tip of elytra acutely spinous...**antennatus.**
Antennæ not spinous. Thorax black with yellow bands. Abdomen more densely pubescent at sides, feebly at middle.
  Prosternum wide between the coxæ, dilated at tip and more or less emarginate, prolonged and meeting the mesosternum and slightly overlapping it. (Pl. II, fig. 8 e).
    Elytra acutely prolonged at tip.....**crinicornis.**
  Prosternum moderate, not prolonged, the tip truncate.
    Second joint of hind tarsus glabrous at middle, antennæ of male longer than the body.
      Prosternum between the coxæ longer than wide. (Pl. II, fig. 8 g). **pictus.**
    Second joint of hind tarsus densely pubescent, antennæ not longer than the body.
      Prosternum rather widely separating the coxæ, being as broad as long and as wide as the coxal cavity. (Pl. II, fig. 8 f)....**robiniæ.**
      Prosternum longer than wide, not as wide at its middle as the coxal cavity. (Pl. II, fig. 8 g).....**decorus.**

The above table is the result of a study of the species known to inhabit our territory.

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C. antennatus White = *eurystethus* Lec.

This is easily known by the spinous antennæ and the uniform pubescence of the thorax. The elytra are obliquely truncate at tip, the outer angle prolonged in a slender spine, the markings of the surface are a modification of that of the other species in which the W-shaped band and the second behind it are preserved, the others are either feebly indicated or entirely wanting. The under surface is densely clothed like the thorax. The prosternum is broader than long and slightly prolonged at tip meeting the mesosternum but not overlapping it. The third joint of the posterior tarsi is densely pubescent beneath.

This species occurs in Arizona, and lives in Mesquit wood.

C. crinicornis Chev.—Black, antennæ and feet rufous. Head with yellowish pubescence on the front and line at the occiput, front obtusely carinate. Thorax broader than long, sides arcuate and gradually broader behind, suddenly narrowed at base, the hind angles very distinct, surface black with narrow yellow lines, the first at apex, two at middle, one basal and a short line on each side at the hind angles which join the basal. Elytra gradually attenuate behind, tip obliquely truncate, the outer angle very acute, surface black with yellow transverse bands very much as in *robiniæ* which are broken forming small spots. Body beneath pubescent at sides only, abdomen sparsely punctured and glabrous at middle. Prosternum prolonged and dilated behind the coxæ, broadly emarginate at tip, meeting and slightly overlapping the mesosternum which is abruptly vertical in front. Length .48—.84 inch.

This species reproduces exactly the markings of *C. erythropus* Chev., but differs in the form of the prosternum. In the latter species the prosternum is truncate at the posterior margin of the coxæ and not at all prolonged. It may however be synonymous with one of the other species described from Mexico, or with *difficilis* Chev., from Cuba, but no mention is made of the remarkable character above named except by Lacordaire, (Genera vol. ix, p. 62, note), who observed it in *C. proximus* L. et G. from Chili, with which ours is not likely to be identical. Supposing it new I had given it a name calling attention to this character, but its identity was made known to me by Mr. Sallé.

Occurs in California (southeast), Sonora, Arizona, Texas, Louisiana and Nassau N. P.

C. erythropus Chev., is not yet known to me as an inhabitant of our fauna. It has the thorax suddenly constricted as in *crinicornis* but the prosternum is as in *pictus*.

C. pictus Drury.

The prosternum is longer than wide, truncate at tip and not prolonged. The second joint of hind tarsus glabrous at middle. The elytra are obliquely truncate at tip but not prolonged. The antennæ

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of the male are always longer than the body resembling in this respect *antennatus*.

Lives in Hickory wood and appears early in the Spring, and is abundant wherever that tree occurs and is often very destructive.

C. robiniæ Forst.

Closely resembles *pictus* in form and coloration but differs in the antennal characters of the male and the structure of the hind tarsi. The prosternum is as broad as long being wider than in *pictus* and also truncate at tip. The legs are also shorter than in that species, the hind thighs not reaching the tip of the abdomen in the male.

Infests Locust wood (*Robinia pseud-acacia*), and appears in the Autumn. I have seen a variety of this species with the W-shaped band entirely obliterated.

C. decorus Oliv., *charus* Say, *infaustus* Lec., *brevipennis* Lec.
var. lutosus Lec.

An extremely variable species which, with the mass of material before me, is not capable of division.

In the above synonymy *brevipennis* is doubtless a specimen captured immediately after its emergence from the wood, its abdomen is soft and elongate and from the markings belongs to the *infaustus* type; *lutosus* seems to be an *infaustus* in which the yellow bands cover the entire surface and have no black.

Two forms remain which, for convenience in description, may be considered varieties although not specifically separable.

Var. *infaustus* Lec.—The elytra are fasciate after the type of *pictus*, but the yellow bands are all wider and are arranged in the following manner: (1) base of elytra narrowly yellow, (2) a subbasal transverse band, these two very narrowly separated and sometimes confluent, behind these (3) a W-shaped band, then (4) a transverse band of irregular outline extending forward along the suture, behind this a broader (5) transverse band, then at apex two (6—7) others narrowly separated. (Pl. II, fig. 8 a, is a feebly marked form).

These bands often become confluent by becoming gradually broader, so that bands 1—2—3 form a broad basal yellow space. Band four then disappears and we have the variety *charus*. Again the first three bands remain separated with the fourth absent, or bands 1—4 may become confluent and from this the entire surface becomes yellow as in *lutosus*.

This species extends from the Southern States to Kansas and Colorado, in both varieties.

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SICYOBIUS n. g.

Head subretractile, front slightly convex, vertex nearly flat, antenniferous tubercles not prominent. Eyes moderately granulated, entirely divided, the two portions joined by a dark line without lenses, upper division broadly crescentic, the lower larger, as broad as long. Antennæ very little longer than half the body, pubescent but not ciliate, first joint conical constricted at base, second about one-third the length of the first, third a very little longer than the first two together, fourth one-third shorter than the preceding, joints 5—10 very gradually decreasing, eleventh acute not longer than the tenth, joints 5—11 together a little longer than three and four together. Thorax cylindrical, sides slightly arcuate. Scutellum transverse. Elytra a little wider than the thorax, humeri obtuse, form elongate, apices obliquely truncate. Anterior coxæ subglobular, moderately separated by the prosternum the tip of which is not prominent, the coxal cavities not angulate externally. Mesosternum moderately broad, convex in front, the coxal cavities open externally. Metasternal episterna very narrow. Femora slightly thickened, the posterior not longer than the first two abdominal segments. Middle tibiæ sinuate externally. Tarsi nearly as long as the tibiæ, the first joint nearly as long as the next two together. Claws divergent.

With these characters a genus is defined possessing all the essential characters of the group *Apomecynides* of the true Lamiæ, excepting that the anterior coxæ are not angulate externally and differs from all the genera of that group by the eyes being entirely divided. In the arrangement proposed by Dr. Leconte it would enter the tribe *Hippopsini*, from all of the genera of which it differs by the short antennæ and divided eyes.

S. Brousii n. sp.—Cylindrical moderately elongate. Thorax a little longer than wide, cylindrical, slightly expanded at middle, apical margin slightly arcuate, disc coarsely and deeply punctured. Elytra a little wider than the thorax, humeri obtuse, sides feebly arcuately narrowed to apex which is obliquely truncate, surface with rows of punctures which are all rather coarse but alternating in size. Body beneath and legs clothed with cinereous pubescence, denuded forming small black spots. Body above clothed with pale ochreous pubescence, denser at the sides of the thorax and on the elytra with small spots of white, two patches of which are somewhat larger and form slight oblique bands one between the middle and base, the other behind the middle. Length .26—.40 inch; 6.5—10 mm. (Pl. II, fig. 9).

The general form of this insect is that of *Ataxia crypta*, without the thoracic spines.

Several specimens from western Kansas, taken on the Wild Gourd (*Cucumis perennis*), by Dr. H. A. Brous, after whom I take great pleasure in naming it. To him we are indebted for our first knowledge of the habits of Amblychila.

IDŒMEA n. g.

Eyes coarsely granulated, narrowly separated on the vertex widely beneath, deeply emarginate, the upper portion much smaller. Front vertical broader above, vertex deeply impressed forming two antennal tubercles. Antennæ ♂

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a little longer than the body, slender, eleven-jointed, above and beneath hairy, first joint moderately stout, cylindrical, suddenly constricted at base, a small dentiform process in front at tip, second joint very short, joint three moderately long, one-third longer than the first, 4—11 gradually shorter and more slender. Labrum distinct, short, transverse. Mandibles short, obtuse at tip. Palpi unequal, maxillary longer, last joint of both oval and pointed. Thorax cylindrical, slightly stouter at middle. Anterior coxæ prominent, conical, contiguous, the cavities open behind, middle coxæ conical, contiguous, posterior coxæ slightly separated. Anterior tibiæ obliquely sulcate, middle and posterior simple. Tarsi slightly dilated, clothed with silken pubescence beneath, first joint as long as the next two together. Claws divaricate. Ventral segments cylindrical, gradually decreasing in length. Elytra nearly as long as the abdomen.

The above generic name is proposed for a species of gigantic size for the tribe allied to *Styloxus* Lec., with which it agrees in most of its characters, but differs in the longer and more vertical front more deeply impressed on the vertex, terminating above in obtusely conical tuberosities from which the antennæ arise. The eyes are also smaller being very evidently separated on the vertex and rather widely separated on the under side. The parts of the mouth are also better developed than in the other genera of the tribe although by no means large.

I. Fulleri n. sp.—Brownish testaceous, elongate, subcylindrical, sparsely clothed with pale brownish pubescence. Thorax cylindrical, slightly dilated at middle, one-fourth longer than wide, a slight oblique impression on each side near the base, vague traces of three smooth discal lines, surface coarsely punctured. Elytra wider than the thorax, coarsely punctured, gradually narrowed to apex, apices separately rounded. Body beneath and legs piceous, femora paler at base. Length .66 inch; 16.5 mm. (Pl. II, fig. 10).

One specimen from Texas, kindly given me by Mr. A. S. Fuller, to whom I take great pleasure in dedicating it.

EXPLANATION OF PLATE II.

1.—*Cœnopœus Palmeri* Lec.
2.—*Lepturges symmetricus* Hald., var. *pictus* Lec.
3.— " *signatus* Lec.
4.— " *querci* Fitch.
5.— " *facetus* Say.
6.— " *regularis* Lec.
7.—*Œme strangulata* Horn.
8.—*Cyllene decorus* Oliv., var. *a, infaustus* Lec.; *c, charus* Say; *e,* prothorax beneath of *crinicornis*; *f, robiniæ*; *g, pictus* and *decorus*.
9.—*Sicyobius Brousii* Horn.
10.—*Idæmea Fulleri* Horn.

Erratum.—On page 133, for **O. striaugulata** read **O. straugulata.**

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Contributions to the COLEOPTEROLOGY of the United States, No. 3.

BY GEORGE H. HORN, M. D.

The exploration of newly accessible parts of our western country and the more careful examination of older fields bring to our notice from time to time many new species belonging often to groups which have already been the subject of synoptic study. No course remains but their description in an isolated manner. In the present paper will be found species whose types are in the cabinets of either Dr. Leconte or myself, and with their descriptions will be found such short studies of genera as have been made on various occasions which it is hoped will be found of value, the tables of genera and species having been prepared for my own convenience other students will be saved the same labor.

CICINDELA Linn.

C. anthracina n. sp.—Very black, shining glabrous. Labrum convex, moderately long, twice as long at middle as at sides, lateral angles rectangular, median lobe with an acute tooth at middle. Head entirely without pubescence, very finely strigose at the sides, surface opaque. Eyes moderate as in *pulchra*. Thorax very little narrowed behind, apical and basal lines moderately impressed, median line feeble, surface feebly convex very slightly wrinkled at the sides. Elytra moderately convex, surface with coarse but not closely placed punctures near the base which become rapidly finer toward the tip where they become obsolete, tip of elytra not serrulate, sutural angle (♀) slightly dentiform. Body beneath black, very smooth and shining without hairs. Length .56 inch; 14 mm.

This species seems to me to be best placed in our series between *longilabris* and *pulchra* in a separate group, as the labrum is less elongate than in the former while the front is without hairs in that species as in the present; *pulchra* and its allies have a short labrum more or less tridentate at middle and with the front hairy. The elytral sculpture of the present species is however almost exactly that of *pulchra*. The form of the thorax is here feebly narrowed behind resembling *pulchra* and its allies while the thorax of *longilabris* is decidedly narrowed behind and subtransverse.

One pair collected at Fort Bayard, New Mexico.

PTEROSTICHUS Bon.

P. (*Peristethus*) **Hamiltoni** n. sp.—Oblong oval, black, shining, antennæ and legs brownish. Head smooth, front with the usual two convergent lines. Thorax quadrate, a very little wider than long, base scarcely wider than apex, the former truncate with angles acutely rectangular, the latter feebly emar-

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ginate with obtuse angles, sides feebly arcuate margin narrowly depressed, disc smooth median line distinctly impressed, basal impressions double moderately deep, the inner longer, not separated at base, between them a few punctures. Elytra oval, broadest at middle, base very little wider than the thorax, humeri obtuse, sides moderately arcuate, apex obtuse at sides sinuate; disc moderately convex, striate, striæ not punctured. Three dorsal punctures, the posterior two on the second stria the anterior on the third. Prosternum feebly margined at tip. Thorax beneath very sparsely punctulate. Abdomen smooth, sparsely punctulate and wrinkled at the sides. Posterior tarsi with two joints grooved on the outer side. Body apterous. Length .54 inch; 13.5 mm.

On comparison with *permundus* this species is totally black without iridescence, thorax more convex not narrowed in front, basal impressions deeper, the outer especially more evident, the margin less depressed; the elytra are more oval, more convex, humeri obtuse, striæ less deep and intervals less convex.

Taken abundantly near Allegheny City, Pennsylvania, by Dr. John Hamilton.

P. agonus n. sp.—Oblong black, feebly shining. Thorax one-third wider than long, apex feebly emarginate with obtuse angles, base truncate with broadly rounded angles, sides regularly arcuate, margin broadly depressed posteriorly including the outer basal impression, inner impression moderate, slender in front, broader behind, a very few obsolete punctures along the base and side margin, disc moderately convex, feebly transversely wrinkled. Elytra oval broader behind the middle, feebly striate, striæ finely punctured, intervals flat, alternately with distant interruptions, the third with four deep punctures. Body beneath black, shining obsoletely wrinkled. Femora red, tibiæ and tarsi black. Length .40 inch; 10 mm. (Pl. III, fig. 2).

This species is allied to *punctatissimus* from which it differs in its smaller size, form of thorax and many other characters. It is peculiar in having the hind angles of the thorax very broadly rounded.

One specimen from Yukon River, Alaska, given by Mr. H. Ulke.

HARPALUS Latr.

H. obliquus n. sp.—Pitchy black, shining, antennæ and legs ferruginous. Head moderate, sparsely punctate. Thorax cordate one-third wider than long, sides in front arcuate, posteriorly oblique margin very narrow, base narrower than the apex, hind angles not prominent, basal angular impressions moderately deep, somewhat triangular and punctured, median line distinctly impressed, a few punctures along the basal margin, disc moderately convex shining. Elytra oval, humeri obtusely rounded, apex feebly sinuate, surface striate, striæ impunctured, intervals slightly convex, a single dorsal puncture at posterior third on the third interval near the second stria. Body beneath pitchy black, smooth, abdomen with a few punctures near the base, and at sides bearing accessory setæ. Mentum without tooth. Length .40 inch; 10 mm. (Pl. III, fig. 3).

This species is totally unlike any other in our fauna by the form of the thorax, the sides being very oblique posteriorly forming a broad

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angle with the base the point of the angle being rather obtuse. The presence of accessory ambulatorial setæ and absence of mentum tooth will place the species at the end of our series as at present arranged, in association with the somewhat aberrant *testaceus* and *gravis* without however having much relationship with either.

Occurs at Fort Bayard, New Mexico.

Near this species should be placed *Piosoma cordatum* Lec. The male has the middle and anterior tarsi dilated and papillose beneath as in Harpalus, the abdomen has accessory ambulatorial setæ, the mentum without tooth and finally a dorsal puncture as in *obliquus*. It will be known from all our species of Harpalus by its reproduction of the form of *Cratacanthus dubius*.

XENOMYCETES n. g.

Tarsi subtetramerous. Ligula as broad as long, truncate at tip. Antennæ with three-jointed loose club rather abruptly formed, the ninth and tenth joints not prolonged on the inner side, first joint obconical, second much shorter, third cylindrical nearly as long as the next two together, joints 4—8 nearly equal, about as wide as long, joint nine a little larger in the male and somewhat larger than the tenth, in the female equal to the tenth and less suddenly broader than the eighth, eleventh obtusely oval a little larger than the preceding. Palpi with terminal joint obtusely conical. Prosternum narrowly separating the coxæ, carinate between them and slightly prolonged at tip. Mesosternum moderately long and strongly carinate, slightly bifurcate behind to receive the metasternum. Prothorax without submarginal line or longitudinal discal grooves, transverse basal impression moderate ending abruptly but not in foveæ. Form oblong, inconspicuously pubescent. First joint of tarsi not elongate, second shorter and prolonged beneath, last joint longer than the others together and with simple claws. First and fifth segments of abdomen elongate, the intermediate three short and equal.

The above genus is proposed for a species which must be referred to the *Lycoperdinites* of Chapuis or the more comprehensive tribe *Dapsini* of Gerstæcker. The entire absence of grooves on the thorax excepting the transverse basal, places it in some relationship with *Polymnus* and *Heliobletus*, the latter especially, but even here there are short longitudinal grooves. This latter character is the only one on which I can at present rely for the separation of the two genera, together with the fact that the *Heliobletus* is from Borneo and on comparison would doubtless show other differences.

X. Morrisoni n. sp.—Oblong, moderately elongate, ferruginous, moderately shining, very sparsely clothed with inconspicuous pubescence. Head sparsely punctate. Antennæ a little longer than the head and thorax. Thorax a little broader than long, apex emarginate, sides in front feebly arcuate, posteriorly slightly sinuate, hind angles acute, base truncate, surface very sparsely punctate. Elytra oblong not wider at base than the thorax, sides feebly arcu-

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ate and gradually but slightly narrowed to apex, the latter obtuse, disc feebly convex, sparsely and irregularly punctate with a faint tendency to a striate arrangement, sutural stria finely impressed. Body beneath very sparsely punctate. Length .20—.22 inch; 5—5.5 mm. (Pl. III, fig. 4).

In addition to the antennal character above given the male differs from the female in having the middle tibiæ slightly arcuate at tip and also a curious arrangement on the last ventral segment. The latter is as follows: the middle of the segment is deeply concave, from the bottom of the concavity arises a thin plate which has a transverse expansion posteriorly so that its summit forms the letter T, on each side of the concavity a short triangular plate arises which is placed obliquely. The general appearance of this insect is that of a large *Phymaphora*.

Two specimens taken by Mr. H. K. Morrison, in the high Sierras of western Nevada, another was taken by Mr. Crotch.

Mycetina testacea Lec., has a well defined line parallel with the side margin of the thorax. As the genera are defined it should not be a *Mycetina*. I would refer it to *Coniopoda* but the second tarsal joint is said to be subbilobed. A species of *Epopterus* is said by Chapuis to occur in Texas, but this genus has no basal transverse groove. Both these genera have the marginal and the longitudinal lines well marked. In *M. testacea* the tenth joint of the antennæ is slightly prolonged on the inner side. This prolongation is the principal if not the only character made use of to separate three genera under the group name *Epipocites*, (Gen. Col. xii, p. 120). From a study of our species this seems entirely insufficient from its inconstancy.

Here also might be mentioned the genus *Aphorista* Gorham, separated by the claws being (so said), dentate or subdentate. They certainly do not differ from those of *Mycetina vittata*. If it be considered advisable to divide *Mycetina* the form of the prosternum is a far better character, using it as follows:

Prosternum extremely narrow and depressed between the coxæ, the point deflexed and not prolonged, mesosternum very oblique, nearly flat.
Aphorista.

Prosternum moderately broad not depressed, the tip prolonged, meeting the rather protuberant mesosternum..... .....**Mycetina.**

By this means the maculate species remain with *Mycetina*, while *morosa*, *læta* and *vittata* are *Aphorista*, *testacea* having already been removed.

PHYMAPHORA Newm.

P. californica n. sp.—Oblong, glabrous, shining, piceous, thorax reddish-yellow with median piceous spot, elytra piceous, base broadly rufous and a narrow crescentic band posteriorly of the same color. Head rufous, sparsely

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punctate. Antennæ a little longer than the head and thorax with the stem and club (♂) of equal length. Thorax a little broader than long, slightly narrowed posteriorly, sides in front feebly arcuate, posteriorly slightly sinuate, hind angles acute, disc sparsely punctate. Elytra sparsely irregularly punctate, sutural stria deeply impressed. Beneath smooth, sparsely punctate. Length .14 inch; 3.5 mm. (Pl. III, fig. 5).

This species resembles in form and color *pulchella* and varies similarly but differs in the characters of the male. Here the stem and club are of about equal length. The club is four-jointed, the first joint very short and transverse, the second suddenly larger with the posterior side longer than the anterior, the third is equally broad but with the two sides equal and shorter than the second, the fourth is a little narrower but longer than the third. In *pulchella* the second joint of the club is very large and nearly equal to the third and fourth together. In *californicus* the anterior tibiæ of the male have a tooth on the inner side near the tip while in *pulchella* there is no tooth, merely a slight thickening, the middle tibiæ of both species have a small tooth near the tip and on the posterior a slight angulation at apical third.

San Francisco, also western Nevada, Morrison.

TERETRIUS Erichs.

T. placitus n. sp.—Black, shining, elytra red. Thorax nearly square, very narrowly margined, surface moderately densely and equally punctured. Elytra a little more coarsely but less densely punctured than the thorax and without trace of striæ, color red. Propygidium and pygidium moderately densely punctured, the latter more finely. Prosternum truncate in front. Mesosternum with a fine entire marginal line, surface coarsely and moderately densely punctured. Legs rufous. Anterior tibiæ with four or five minute teeth, the middle with two larger teeth, posterior finely bispinose, the upper spine which is near the middle very small. Length .08 inch; 2 mm.

A more robust species than *americanus* and less coarsely punctured and differing especially in the dentation of the tibiæ. From *obliquulus* it differs in the absence of the elytral stria and in the tibiæ. The color character is of secondary importance and while the three specimens before me are alike it is possible that others will occur entirely black.

Collected by Mr. H. K. Morrison, in western Nevada.

T. montanus n. sp.—Black, shining. Thorax a little wider than long, rather finely punctate the punctures denser in front. Elytra not more densely punctured than the posterior portion of the thorax. Prosternum sparsely punctate, the tip distinctly grooved. Mesosternum sparsely and finely punctate without marginal line. Anterior tibiæ 5-denticulate, middle tibiæ rather strongly bidentate at middle, the posterior bispinose near the tip. Length .10 inch; 2.5 mm.

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One specimen, Veta Pass, Colorado. Of the same form as *americanus* but larger and with differently dentate tibiæ.

The species now known to us of Teretrius may be separated in the following manner:

Mesosternum with entire marginal line.
A short oblique stria on each elytron.....**obliquulus** Lec.
Elytra without striæ.
Middle tibiæ bidentate at middle.....**placitus** n. sp.
Middle tibiæ tridentate.....**americanus** Lec.
Mesosternum without marginal line.
Middle tibiæ bidentate at middle.....**montanus** n. sp.

In the preceding descriptions and table in counting the spinules or teeth of the middle and posterior tibiæ no account is taken of the two which are present in all the species at the outer angle of the tip, only those are counted which belong properly to the edge of the tibia.

GEOTRUPES Latr.

G. occidentalis n. sp.—Form of *semiopacus*, color above brilliant violet changeable to cupreous, beneath steel-blue. Clypeus oval, coarsely punctured, at middle with a short triangular horn slightly prolonged in carina toward the front, vertex smooth, above each eye a moderate tubercle. Thorax smooth, a very few obsolete punctures along the margin and the usual fovea at the side, base with deeply impressed marginal line which is entirely obliterated on each side except at the angle. Elytra moderately deeply striate, striæ subcrenately punctured, intervals moderately convex, margin moderately dilated. Body beneath sparsely clothed with brownish hair. Anterior tibiæ 7-dentate, the teeth gradually decreasing in size above. Length (including head) .60 inch; 15 mm.

This species, the only one known from California, belongs to the Cnemotrupes group as defined by Mr. Jekel. I have however but one female, but in this group the first joint of the middle tarsus of both sexes equals the three next together while it is shorter in the Onychotrupes group. The elytral margin is about as much developed as in *semiopacus* and much less than in *chalybæus* recently described by Dr. Leconte from Florida. The latter has also the thorax nearly impunctate but it may be very easily known by the obsolete elytral striæ.

One specimen from Havilah,* California, given me by Mr. Henry Edwards.

The following dichotomous table is given to aid the student in distinguishing our species. It is needless to say that it is purely empirical and must not supplant the arrangement proposed by Jekel,

* Mr. Edwards informs me that Havilah is a new settlement in the Tulare Valley east of Visalia near the base of the Sierra Nevada.

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from whose paper I extracted what concerned our species in the short review published by me in Trans. Am. Ent. Soc. 1868, p. 313.

Surface granulate without trace of striæ or punctures.....**retusus.**
Surface not granulate, elytra striate or with rows of punctures.
Joints of antennal club entire.
Body above opaque, elytra with rows of punctures only.....**opacus.**
Body above shining more or less metallic.
Striæ of elytra without punctures.....**semiopacus.**
Striæ of elytra punctured.
Sutural stria alone impressed, disc with rows of fine punctures only.
Anterior tibiæ strongly spinous posteriorly.....**chalybæus.**
Striæ all impressed.
Thorax with very few obsolete punctures at the sides.....**occidentalis.**
Thorax with numerous coarse punctures at sides.
First joint of middle tarsus shorter than the next three together.
splendidus.
First joint of middle tarsus equal to the next three.
Elytral striæ coarsely crenately punctured.....**Egeriei.**
Elytral striæ more finely punctured.....**Blackburnii.**
Second joint of club emarginate, partially concealed on one side where the club is closed.....**Balyi.**

G. conicollis Jekel, is merely a variety of Blackburnii.

PLECTRODES Horn.

This genus was indicated by me (Trans. Am. Ent. Soc. 1867, p. 166), on specimens obtained from Visalia, Cal. Since then two other species have been discovered having considerable superficial resemblance to the typical form but distinguished by characters which seem worthy of more special notice.

P. pubescens Horn, loc. p. 167.

Anterior legs.—Anterior claw strongly arcuate, armed with a long subbasal tooth a little longer than half the apical portion. Posterior claw feebly curved except at tip, at base a moderate dilatation not dentiform in character.

Middle legs.—Anterior claw as above. Posterior claw with a more abrupt dilatation but not dentiform.

Posterior legs.—Anterior claw as above. Posterior claw with a still more abrupt dilatation, rectangular in front and dentiform at its tip.

The claws on the three tarsi are shown on Pl. III, fig. 7 a.

Last joint of maxillary palpi not wider than the third, as long as the preceding joints together, form oblong obtuse at tip and moderately excavated on its outer face. It is a little less in length than half the antennal club. Pl. III, fig. 7 d.

P. Carpenteri Lec., Wheeler's Rep. 1876, App. H, 10, p. 516.

Anterior legs.—Anterior claw strongly arcuate, armed at base with a slender acute tooth one-third the length of the apical portion. Posterior claw moderately arcuate, scarcely dilated at base.

Middle legs.—Anterior claw as above. Posterior claw slightly dilated at base with a minute tooth.

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Posterior legs.—Anterior claw as above. Posterior claw similar to that of the middle with the minute tooth a little more distinct.

On Pl. III, fig. 7 b, the claws are illustrated.

Last joint of maxillary palpi oval, subacute at tip, broadly and rather deeply excavated on its outer face. It is scarcely a third the length of the antennal club. Pl. III, fig. 7 e.

P. palpalis n. sp.—Piceous beneath, brownish above, moderately densely clothed with cinereous pubescence, short and recumbent on the elytra, longer and semierect on the head and thorax; body beneath with long silken hairs, abdomen with short recumbent pubescence. Clypeus very distinctly narrowed at base, angles rounded, apical margin truncate and reflexed. Thorax broader than long, narrowed in front, sides moderately arcuate, surface coarsely and moderately densely punctate. Elytra densely punctulate, disc vaguely costate. Pygidium sparsely pubescent as on the elytra. Legs fimbriate with moderately long hair. Length .80 inch; 20 mm.

This species resembles *Carpenteri* in form and vestiture but differs in the characters given below.

The claws are shown on Pl. III, fig. 7 c.

Anterior legs.—Anterior claw moderately arcuate, armed at base with a slender acute tooth scarcely more than a fourth the length of the apical portion. Posterior claw moderately arcuate, armed at base with a broad basal dilatation which is dentate in front.

Middle legs.—Anterior claw as above. Posterior claw with a basal dilatation armed in front with a tooth of moderate length.

Posterior legs.—Anterior claw as above. Posterior very nearly like the anterior with the tooth merely a little smaller.

The tarsi of this species are longer and more slender than those of the other two species. This is especially noticeable in the middle legs where the tarsi are very distinctly longer than the tibiæ. The tarsi in fact resemble those of *Lachnosterna* (e. g. *fusca*), while in the others the tarsi approach *Polyphylla*.

Last joint of maxillary palpi nearly one-half longer than the preceding joints taken together, oval, subacute at tip, very deeply excavated on the outer side the groove running the entire length of the joint. It is moreover three-fourths the length of the antennal club. Pl. III, fig. 7 f.

I have seen two ♂ specimens of this species, one in the cabinet of Dr. Leconte, the other kindly presented to me by Mr. Chas. Fuchs. They were collected in California.

In resuming the differences it will be seen that *pubescens* has a shallow and narrow impression on the outer face of the last joint of the maxillary palpi, *Carpenteri* has a broader and deeper impression while *palpalis* with the joint much longer has the impression reaching the whole length of the joint and extending into it at least two-thirds of its thickness.

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In the claws *pubescens* has, on the anterior, a tooth longer than half the apical portion, *Carpenteri* scarcely a third and *palpalis* about a fourth. The posterior claw of each pair of feet is thus modified: on the front legs of *pubescens* this claw is slightly dilated but no tooth, middle legs abrupt dilatation no tooth, hind legs abrupt dilatation and a small tooth; in *Carpenteri* on the anterior legs this claw is feebly dilated at base, on the middle legs slightly dilated with a minute tooth, on the hind legs similar with the tooth a little more evident; in *palpalis* the same claw has on the front legs a minute tooth, on the middle a stronger tooth while on the posterior legs the tooth of the two claws is very nearly equal.

These comparisons show that while *pubescens* is the most specialized type from the fact that its claws are most dissimilar in each pair of legs, the other species depart from this and seem gradually to approach the true *Melolonthæ* in which both claws are alike, the approximation being best marked in *palpalis*. While this approach occurs in the latter species it will be noticed that, as if by compensation, the terminal joint of the palpi assumes a much greater development and reverts to the type of the *Clavipalpides* in a more decided manner than in either of the other two species.

The discovery of the new species above leaves very little doubt in my mind that the view already expressed by me that *Plectrodes* must be associated with the allies of *Tanyproctus* in the Clavipalpides as constituted by Lacordaire. From its slender tarsi it is most closely allied to *Clavipalpus* from which it differs in having the antennæ 10-jointed and the claws dissimilar and dentate and not cleft.

PHILEURUS Latr.

The descriptions of our species are not accessible to many students and the following notes will assist in their recognition:

Outer apical angle of posterior tibiæ spiniform.

Head with two moderately long, obtuse, curved processes; median groove of thorax moderately deep, limited in front by a tubercle which is distant from the apical margin, thorax flattened in front.....**truncatus.**

Head with two conical tubercles, groove of thorax deep nearly attaining the front and limited by a tubercle which is near the apical margin...**valgus.**

Head with two small tubercles, median groove of thorax very feeble, no tubercle, surface of thorax very coarsely and densely punctured in front.....**illatus.**

Outer apical angle of hind tibiæ not spiniform, the margin fimbriate with short stout spinules.

Head with a feeble transverse carina, thoracic groove nearly obsolete and without tubercle.....**cribrosus.**

In the first two species the hind tibiæ are strongly bi- or even tri-

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spinous on the posterior edge, in the last two these are replaced by two oblique ridges which are spinulose.

P. TRUNCATUS Beauv., occurs from North Carolina southward.

P. VALGUS Fab. Texas.

P. ILLATUS Lec. Arizona to Peninsula of California.

P. CRIBROSUS Lec. Texas. Pl. III, fig. 6.

ACMÆODERA Esch.

A. lanata n. sp.—Form moderately elongate, gradually narrowed from base of elytra to tip, surface feebly bronzed, clothed with long white silken hair. Front sparsely punctured. Thorax not wider than the elytra, gradually narrowed in front, surface uniformly bronzed, moderately densely punctured, punctures finer and less dense in front, median line feebly impressed, basal impressions feeble. Elytra with striæ of moderately coarse punctures, intervals feebly convex, surface feebly bronzed with two nearly entire yellow vittæ, the one submedian the outer near the margin. Prosternum trisinuate in front. Abdomen very densely and moderately finely punctured (except the middle of the first segment), and densely clothed with long white silken hair. Legs fimbriate with long hair. Length .36 inch; 9 mm.

From its trisinuate prosternum this species belongs to the division of *Acm. sinuatæ* as indicated Trans. Am. Ent. Soc. vii, 1878, p. 4, and from the form and color of thorax must be placed near *pubiventris* in the table on p. 5. It is abundantly distinct from any in the group by the sculpture of the abdomen and the long silken hairs which clothe the body and are sparse on the upper surface and quite dense beneath.

One specimen, Kanab, Utah.

CYMATODERA Gray

C. gigantea n. sp.—Elongate, piceous, feebly shining, sparsely clothed with short erect hair. Head moderately coarsely punctate. Antennæ moderately long, longer than head and thorax, joints 3—11 subequal, second very little shorter, color piceous, basal joint rufous. Thorax twice as long as wide at base, apex broader than base, form subcylindrical, slightly constricted before and behind the middle, surface rather finely not densely punctate. Elytra nearly twice as long as head and thorax and nearly twice as wide at base as the thorax, gradually but slightly broader behind, narrowed at apical fourth, the apices rounded, surface with rows of punctures arranged in pairs, coarser near the base, becoming gradually finer toward the tip, intervals alternately broader and sparsely punctate, apical fourth rather densely punctulate, color piceous, apical fourth and a broad transverse band behind the middle reddish-yellow. Body beneath rufo-piceous not densely punctate, sparsely pubescent. Abdomen rufous, moderately densely punctulate. Legs rufo-piceous, sparsely hairy. Length .82 inch; 21 mm.

Male.—Last ventral segment wider than the last dorsal, broadly emarginate at tip, fifth ventral triangularly emarginate at middle. Last dorsal with a feeble median impression near the tip, the latter broadly emarginate.

This species must be placed near *californica* in the arrangement of our species as indicated on p. 221, Trans. Am. Ent. Soc. vol. v.

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It differs from that species by the tips of the elytra entire and the color of the surface as well as by the sexual characters. It is our largest Cleride, this male being as large as the female of *californica*.

One specimen kindly given me by Mr. A. S. Fuller, received by him from Texas.

C. usta Lec., does not differ from CYLINDRICOLLIS Chev., from Mex.

TRICHODES Hbst.

T. simulator n. sp.—Blue black, elytra orange red with two transverse bands and tip bluish black, clothed with yellowish hair, long on the head and thorax, short on the elytra except at base. Head with greenish tinge densely punctured. Thorax very coarsely and densely punctured, almost cribrate. Elytra coarsely and deeply punctured, the punctures feebly arranged in series, tip of elytra ♂ truncate, the sutural angle slightly prolonged. Body beneath and legs with moderately long yellowish hair. Length .52 inch; 13 mm.

This species reproduces almost exactly the markings of *apivorus* and might readily be mistaken for it. The elytra however differ in the form of the tip and the thorax is more coarsely punctured than in either *bibalteatus* or *apivorus*. The antennal club is broadly triangular as in the former, in the latter the club is more elongate as in *Nuttali*.

Two specimens ♂, are before me from the cabinet of Mr. A. S. Fuller, collected in Arizona.

TROGODENDRON Guér.

T. Edwardsii n. sp.—Black, shining, almost entirely devoid of pubescence, elytra orange red, a median fascia interrupted at sides and suture and apex broadly, black. Head black, coarsely but sparsely punctate, front slightly concave, surface with few short yellowish hairs. Antennæ black, club very gradually formed. Thorax black, one-half wider than long, narrower at base, apex and base constricted, the latter more strongly, sides between the constrictions strongly arcuate, surface shining with very few coarse punctures and a few short yellow hairs. Elytra one-half wider than the thorax, humeri moderately prominent, sides at basal fourth parallel, posteriorly arcuately slightly dilated, apices rounded, surface very shining sparsely punctate, punctures a little closer toward the apex. Body beneath and legs black, sparsely punctate, tip of abdomen red. Length .62 inch; 15.5 mm. (Pl. III, fig. 8).

The occurrence of this genus in our fauna is remarkable but has its parallel in *Aulicus*. These two genera are represented by types from Australia, in which the elytra are sculptured with deeply impressed punctures. *Aul. Nero* Spin., has rather finely punctured elytra while in the species here described the elytra are comparatively smooth. Notwithstanding the differences in appearance between *Edwardsii* and the Australian species there is no generic difference and the case is therefore parallel with that of *Aulicus*. The form of the present species is that of a broader *Clerus*, more depressed and broader even than *C. Spinolæ*.

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One specimen from southern Arizona, given me by Henry Edwards Esq., to whom I dedicate it.

The addition of *Aulicus* and *Trogodendron* to our fauna requires a modification of the table of the genera on p. 196 of the Classification. In both the above the labial and maxillary palpi have the last joint broadly triangular, differing in this respect from all our genera with finely granulated eyes. In *Aulicus* the antennal club is abruptly formed of three joints, while in *Trogodendron* the club is very gradually formed and may be said to begin about the sixth or seventh joint.

The following is the amended table:

Eyes strongly granulated.
  Antennæ serrate; labial palpi alone dilated.....**Priocera.**
  Antennæ with joints 9—11 larger.
    Last joint of labial palpi alone dilated.....**Opilus.**
    Last joint of all the palpi dilated.....**Tarsostenus.**
Eyes finely granulated.
  Terminal joint of all the palpi broadly dilated.
    Antennæ with abruptly formed, rather loose, 3-jointed club.....**Aulicus.**
    Antennæ gradually broader not abruptly clavate.....**Trogodendron.**
  Terminal joint of labial palpi alone broadly dilated.
    Last joint of maxillary a little broader than the preceding.
      Antennal club more or less triangular.....**Trichodes.**
    Last joint of maxillary palpi slender.
      Eyes feebly convex very distinctly emarginate.
        Posterior tarsi moderately broadly dilated.....**Clerus.**
        Posterior tarsi longer, scarcely dilated. (Cleron.)....**Thanasimus.**
      Eyes more strongly convex not emarginate.
        First joint of tarsi very short.....**Thaneroclerus.**

Thanasimus does not seem sufficiently distinct from Clerus and the characters of *Cleronomus* in the books lead to no better result. It is however unknown to us in nature. It seems to me probable that, as the differences between *Cleronomus* and *Clerus* are rather those of facies than of character, the former may bear the same relation to the latter that the American species of *Aulicus* and *Trogodendron* do to the Australian. *Thaneroclerus* on the other hand has more convex eyes which are really entire forming in this respect a lead toward *Hydnocera* (but differing in the insertion of the antennæ), and also through *Ichnea* with the Enopliini.

DOLICHOSOMA Steph.

D. tenuiforme n. sp.—Slender elongate, dark greenish bronze, subopaque above, bluish and shining beneath. Head coarsely punctured, front triangularly impressed. Thorax a little narrower than the head, nearly twice as long as wide, sides parallel the margin slightly irregular, surface moderately densely punctured and with an impressed median line. Elytra a little wider than the thorax, sides straight, parallel, narrowed at apical fourth, nearly three times

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as long as the head and thorax, surface rather coarsely, densely and irregularly punctured, sutural margin slightly elevated, lateral margin near apex subserrate. Body beneath shining, bluish, nearly smooth. Length .16 inch; 4 mm.

This species resembles the figure given by Duval of the European *D. lineare*.

One specimen from Texas, given me by Miss H. C. Cook of New York City.

LACTICA Erichs.

This genus is introduced here to note the occurrence of two species in our fauna. It is a part of the tribe *Halticides* as defined by Chapuis. The antennæ are approximate at base, eleven-jointed; the claw joint of the tarsi not inflated; the anterior coxal cavities open behind and the thorax marked with a deep transverse impression in front of the base.

The two species are:

Body above and beneath bright yellow, antennæ (except at base), tibiæ and tarsi black.....**ocreata.**

Head and thorax, anterior and middle legs yellow, elytra deep violet, body beneath and hind legs black.....**specularis.**

L. ocreata Say, (*Altica*), Insects of Louisiana p. 7; Am. Ent. ed. Lec. i, p. 303; *xanthochroa* Harold, Heft. xiii, 1875, p. 89.—"Body pale honey yellow; antennæ excepting the first and second joints, black; thorax on the posterior submargin having a transverse groove, which does not reach the lateral margin, but at its extremities it is abruptly reflected to the posterior edge; elytra destitute of striæ; feet with the knees, tibiæ and tarsi black." Length .14—.16 inch; 3.5—4 mm.

I copy Say's description and add that: the anterior angles of the thorax are obliquely truncate and subdentate as in certain *Cryptophagus*, and the elytra are sparsely irregularly punctate.

Occurs from North Carolina to Louisiana.

L. specularis Harold, Coleop. Heft. xiii, p. 89; xiv, p. 17.—Form and sculpture of *ocreata* and differing in the characters given above. The anterior angles of the thorax are not truncate. Length .14 inch; 3.5 mm.

A very beautiful insect and apparently rare, as I have seen but the one in my cabinet from Georgia. Harold's specimen is from Florida.

ASIDA Latr.

A. quadricollis n. sp.—Black, shining. Head sparsely punctate. Antennæ as long as the head and thorax. Thorax nearly square or a very little wider than long, apex moderately deeply emarginate, base truncate, sides very feebly arcuate, disc feebly convex, sparsely punctulate, margins slightly reflexed and coarsely subconfluently punctured, hind angles acutely rectangular. Elytra a little wider at base than the thorax, margined for a short distance at humeri, sides slightly divergent to the middle then rather rapidly narrowing to tip, surface very sparsely punctate, disc feebly convex, suture sometimes

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depressed. Sides of pro- and mesothorax very sparsely granulate, body beneath otherwise nearly smooth, a few punctures on the abdomen, more evident on the last two segments, tarsi with very short spines beneath. Outer apical angle of anterior tibiæ slightly prolonged. Length .50 inch; 12.5 mm. (Pl. III, fig. 9).

This species seems more nearly allied to *polita* than any other but differs from any in our fauna by its quite square thorax.

Received from Fort Bayard, New Mexico, and placed in my cabinet by Carl F. Gissler.

ASIDA GABBII Horn.—This name is proposed for a species from Lower California, until now known as *gibbicollis*. The name being preoccupied at the time I gave it to this species a new one is required, and I therefore dedicate it to the memory of my lamented friend who collected this and many other varieties during a Geological exploration of the Peninsula.

HELOPS Fab.

The increase in the number of species as well as of specimens requires some modification of a portion of this genus published by me in 1870, (Trans. Amer. Philos. Soc. xiv, p. 392), more particularly in the part containing the apterous species.

The new table is as follows:

Antennæ short, robust, outer joints compressed.....**rugicollis** Lec.
Antennæ longer than head and thorax.....2.
2.—Sides of thorax regularly arcuate or sinuate.....3.
Sides of thorax subangulate in front of middle.....10.
3.—Apex of thorax truncate.....4.
Apex of thorax emarginate, anterior angles rather prominent.....9.
4.—Thorax longer than wide. Form slender.....**attenuatus** Lec.
Thorax usually wider than long, rarely equal.....5.
5.—Prothoracic pleura grooved or strigose.....6.
Prothoracic pleura coarsely punctured.....7.
6.—Hind angles of thorax obtuse or rounded.
Hind angles rounded, pleural sculpture coarse consisting of large punctures feebly confluent. Margin of thorax obtuse.....**Bachei** Lec.
Hind angles obtuse or feebly subrectangular, the margin acute and slightly reflexed; pleural sculpture finely, intricately strigose.
convexulus Lec.
Hind angles of thorax sharply rectangular.
Elytra scarcely striate, with rows of fine punctures.....**sereus** Germ.
Elytra rather deeply striate, the intervals convex....**sulcipennis** Lec.
Elytra with rows of coarse, deep, slightly elongate punctures.
perforatus n. sp.
7.—Elytra with deep broad striæ and coarse quadrate punctures.
arizonensis Horn.
Elytra finely or obsoletely striate.....8.
Elytra densely punctured, with feeble traces of striæ.....**difficilis** Horn.

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8.—Body beneath sparsely punctured.
Hind angles of thorax slightly obtuse, the punctures of the under side slightly elongated. Elytra with moderately coarse punctures. **discretus** Lec.
Hind angles sharply rectangular, punctures of under side sharp and dense. Elytra with rather fine punctures in the striæ.....**cisteloides** Germ.
Body beneath, especially the abdomen densely punctured...**spretus** n. sp.
9.—Form broadly oval, elytra deeply striate.....**farctus** Lec.
10.—Elytra striate, form broadly oval. Thorax beneath rugosely punctured. **tumescens** Lec.

In the above table I have omitted all reference to the terminal joint of the antennæ as it varies with the sex, being longer in the male.

H. montanus Lec., Bull. U. S. Geolog. Surv. 1879, vol. v, p. 518, does not appear in the table as I am unable to separate it from *convexulus* Lec.

H. perforatus n. sp.—Moderately elongate, piceous or black, moderately shining. Antennæ rather slender, nearly reaching the middle of the body, outer joints scarcely wider and very little compressed. Head moderately densely punctured. Thorax wider than long, apex and base equal, truncate, sides moderately arcuate, a little more strongly in front of middle, margin acute, hind angles sharply rectangular, disc moderately convex, coarsely and densely punctured. Elytra oblong oval, very little wider than the thorax, surface with rows of large, very deeply impressed, slightly elongate punctures, intervals narrower sparsely punctulate. Prothorax beneath with punctures which become strigose. Abdomen sparsely punctured. Length .30 inch; 7.5 mm.

This species has some superficial resemblance to *discretus*, but the rows of punctures on the elytra are not only coarser than in that but also than in any other of our species.

Two specimens from Texas, given me by Mr. A. S. Fuller.

H. spretus n. sp.—Form oblong oval, moderately robust, black, surface with slight æneous lustre. Antennæ slender, attaining the middle of the body ♂, or slightly passing the hind angles of thorax ♀. Head moderately densely punctured. Thorax a little wider than long, base a little broader than apex, sides feebly arcuate in front, nearly parallel ♀ or slightly convergent ♂, margin acute, hind angles sharply rectangular, disc moderately convex, and rather densely punctate. Elytra oval slightly oblong, at middle nearly twice as wide as thorax ♀, less wide in ♂, moderately convex surface finely striate, striæ indistinctly punctured, intervals flat, sparsely punctulate, often wrinkled. Under side of thorax coarsely and moderately densely punctured, abdomen densely punctured, denser in the ♀ than the ♂. Length .36—.68 inch; 9—17 mm.

In the ♀ the last three antennal joints are much shorter than those which precede, are broader and more flattened. In the ♂ the last two only are a very little shorter, not broader, the eleventh being fully as long as the tenth.

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This species resembles somewhat our eastern *cisteloides* and replaces it in the west.

Occurs in western Nevada, collected rather abundantly by H. K. Morrison.

DENDROIDES Latr.

D. picipes n. sp.—Piceous, shining, thorax red, base of femora and tip of abdomen pale. Thorax as wide as long, arcuately narrowed in front, surface shining with extremely minute punctures sparsely placed and a slight basal impression. Elytra scarcely dilated posteriorly, moderately densely coarsely punctured. Body beneath sparsely finely punctate, abdomen a little more coarsely and densely. Legs nearly black, base of femora and coxæ ferruginous. Length .52 inch; 13 mm.

Male.—Antennæ with joints 3—10 emitting a very long slender branch, those on joints 6—10 fully five times the length of the joint; the last joint a little longer than the preceding four taken together. Last ventral segment truncate.

Female.—Unknown.

In color of upper surface this species resembles *canadensis*, but differs by the under side and legs being piceous and the thorax very much less conspicuously punctured, as well as by the length of the last joint of the antennæ which in *canadensis* equals the three preceding joints. In its characters except color it more nearly approaches *concolor*.

One specimen given me by Dr. D. M. Castle, who received it from California.

EXPLANATION OF PLATE III.

1.—*Dyschirius lævifasciatus* Horn, Trans. Am. Ent. Soc. 1878, p. 52.
2.—*Pterostichus agonus* Horn.
3.—*Harpalus obliquus* Horn.
4.—*Xenomycetes Morrisoni* Horn.
5.—Head and thorax of *a*, *Phymaphora californica* Horn; *b*, *P. pulchella* Newm.
6.—*Phileurus cribrosus* Lec.; *b*, hind tibia and tarsus *P. truncatus* Beauv., natural size.
7.—Claws and maxillary palpi of *Plectrodes* Horn; *a*, *P. pubescens* Horn, showing the two claws on each leg; *d*, Maxillary palpus of same, as seen from above, the impression on the outer side and an imaginary transverse section; *b*, *P. Carpenteri* Lec., the claws; *e*, the maxillary palpus; *c*, *P. palpalis* Horn, the claws; *f*, the maxillary palpus.
8.—*Trogodendron Edwardsii* Horn.
9.—*Asida quadricollis* Horn.

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Descriptions of some monstrosities observed in North American Coleoptera.

BY HORACE F. JAYNE.

The accumulation of material in some of the larger collections of Coleoptera of our fauna has suggested that a description of the more marked monstrosities might be interesting, and aid at some future time in throwing light on points of development not yet understood. I have, therefore, in the following pages, described and figured those monstrosities which M. Mocquerys of Rouen, in his excellent work on Abnormal Coleoptera, calls "Monstrosities by Excess." Deformities by deficiency or incomplete development have not been considered as they do not seem of sufficient importance, and point only to accidents happening to the insects while in the larvæ or pupæ stage.

I desire to return my sincere thanks to Dr. Horn for the free use of his collection and library, for many suggestions and for kindly revising these pages; also to Dr. LeConte for the loan of specimens from his cabinet, and to Dr. Hagen for the use of specimens belonging to the Museum of Comparative Zoology at Cambridge.

Calosoma triste, Lec.

Fig. 1 represents a monstrosity on the right antenna of a specimen of *Calosoma triste*, Lec. It consists in the sixth joint bearing two branches of five joints. Fig. 1 a, shows the antenna greatly enlarged. The first three joints are normal; the third a little dilated at apex. The fourth is normal in length but is one-half broader at apex. When viewed from above it is distinctly pyriform. The fifth joint is also of normal length but twice the width of that of the left side and slightly broader at apex. The sixth joint is pentagonal in form, in its widest place as wide as long. The apex is obliquely truncate on its inner and outer angles, presenting two unequal faces for the insertion of the two branches. The inner or posterior facet is much smaller and from it arises that branch with the joints exactly resembling the normal antenna. The anterior or outer facet is larger and gives insertion to an anterior or outer branch of five joints; the first being short and thick the others similar to the corresponding normal joints but smaller.

The specimen is in Dr. Horn's Cabinet. Collected in California.

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Cychrus angusticollis, Fisch.

Fig. 2 represents the deformed left anterior leg of a specimen of *Cychrus angusticollis*. The femur is greatly dilated a little beyond the middle and gives off from it superior border a tubercle moderately long and blunt at tip. This may possibly indicate an attempt at the development of a second leg. The femur is then narrowed and at apex is a little larger than the apex of the normal joint. The existence of a cotyloid cavity shows the former presence, and accidental loss, of the tibia.

In the Museum of Comparative Zoology at Cambridge.

Metrius contractus, Esch.

A monstrosity in the middle left leg of a specimen of *Metrius contractus* is shown in fig. 3. The femur bears two tibiæ the inner one bearing two full sets of tarsal joints. The femur is normal. The outer tibia, which may be regarded as the normal one arises from the extremity of the femur and is somewhat shorter, stouter, and more curved than the tibia of the middle right leg. The inner tibia arises from the posterior side of the femur a short distance within the tip and is articulated with it by a separate cotyloid cavity, the two cavities however are confluent as seen in fig. 3 a. It is distinctly arcuate, dilated toward the apex which is obliquely truncate at each angle. From each facet thus formed arises a tarsal joint of normal length, almost contiguous at their bases, and somewhat stouter than the succeeding joints which are normal in form but shorter than those of a normal tarsus. There are four terminal spurs to this tibia, two placed external to the outer tarsus, two within the inner.

In Dr. Horn's Collection.

Pasimachus punctulatus, Hald.

A specimen of *Pasimachus punctulatus* has seven legs; the extra one arising from a trochanter placed between the normal trochanter and femur of the left middle leg. Fig. 4 represents the anomaly as seen from below. The coxa and trochanter are like those of the right leg. On the inferior surface, between the trochanter and femur and embraced in front and behind by the latter, is inserted a second trochanter; triangular in form, about half as wide and one-third as long as the normal one. It gives origin to the extra femur, which is two-thirds as long and about three-fourths as stout as the main thigh. The tibia of this extra femur is perfect except that it is one-fourth shorter than the other; its spurs and tarsal joints, and the claws

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of the latter being all normal. This abnormal leg is less chitinous than the others.

In Dr. Horn's Collection.

Scarites substriatus, Hald.

I have tried to represent in fig. 5 a monstrosity on the right side of the dorsal surface of the prothorax in a specimen of *Scarites substriatus.* It consists of a tubercle about a thirty-second of an inch long, projecting outward and slightly forward. It arises a thirty-second of an inch transversely from the middle of the right margin of the thorax. It is deeply cleft on the summit, almost transversely. Fig. 4 a, represents it when viewed from the side.

Collected in Texas. In Dr. Horn's Cabinet.

Dyschirius globulosus, Say.

The anomalous right anterior leg of a *Dyschirius globulosus* is shown in fig. 6. Fig. 5 a, represents the normal right leg. The deformity consists in the third joint of the tarsus bearing two branches of two joints each. The inferior terminal spur of the tibia is wanting. The first two joints of the right tarsus are normal; the third a little longer, more clavate and obliquely truncate on each side at tip for the articulation of the double set of joints which follow. The two anomalous branches arise on each side of the sharp apex thus formed, one directed to the left the other to the right. The first joint on each branch is a little shorter and stouter than a normal fourth joint; while the terminal or claw joint does not differ greatly in length. The claw joint of the inner or left branch bears a pair of normal claws, the outer claw joint is somewhat broader and bears two sets of claws curved from each other.

In Dr. LeConte's Cabinet.

Chlænius diffinis, Chaud.

Fig. 7 represents a deformity in the left middle leg of a specimen of *Chlænius diffinis.* The tibia at a point a little below the middle bifurcates, the inner bifurcation continuing to normal length bears the tarsal joints. The outer is about two-thirds as long as the inner. It appears from its size and form that this branch bore a set of tarsal joints similar to those seen on the inner; and this opinion is strengthened by the fact that the end is somewhat ragged and seems to have been broken off.

In Dr. Horn's Cabinet.

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Lichnanthe vulpina, Hentz.

A specimen of this insect has an anomalous right antenna as shown in fig. 8. The first three joints are normal. The fourth, fifth and sixth are fused into one joint twice as long as the third; the seventh appears to be connate with the first joint of the club. From the posterior outer border of the long fourth joint near the tip there arises a spherical club of three joints about the length of the third antennal joint. The first joint comprising the pedicle and base of the club, the second the centre, and the last the apex.

In Dr. Horn's Cabinet.

Polyphylla decemlineata, Say.

Fig. 9 represents the right antenna of a specimen of *Polyphylla decemlineata* in which, in addition to the normal structure, the second joint bears a branch anteriorly, consisting of a single free joint which supports two clubs, placed transversely to the normal, of seven lamellæ each, united at their bases. The plane of the normal club is perpendicular to the plane of the abnormal but in the figure the two are represented as in the same plane; the normal branch as seen from the outer side, the abnormal as seen from above. Fig. 9 b, represents the left antenna. The basal joint of the right antenna is somewhat smaller and more inflated than that of the left. The second joint is twice as long as the corresponding one on the left antenna; the outer half of the anterior border being flattened for the insertion of the first joint of the abnormal branch, and its posterior border somewhat sinuate near the tip. The double club on the abnormal branch consists of two sets, of seven lamellæ each of unequal size united at their bases at an angle of forty-five degrees, the outer scarcely longer than half the inner and more curved, while the inner is but little shorter than the club of the normal branch but more curved than it. The joint supporting these branches is obconical and much shorter than the second joint from which it arises. Fig. 9 a, represents the double club as seen from below. The third joint of the normal or posterior branch is in form like that of the left antenna but a fifth shorter. It bears a club of seven lamellæ which is directed downward and is about half as long as that of the left side, much narrower and feebly curved.

The insect is in Dr. LeConte's Cabinet.

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Strategus antæus, Fabr.

A specimen of this insect has the left middle leg triplicated. I have tried to represent this monstrosity in fig. 10. It may be regarded as made up of a normal leg with its trochanter entire. To the under surface of this normal femur are added two others making together a pyramidal mass; free at their apices for about one-third their length. Those of the normal femur and the one nearest to it are closely placed, while the other diverges at an angle of about forty-five degrees. Each femur is provided with a tibia and tarsus. The tibia of the normal femur is not as greatly developed as the corresponding one on the right leg and those on the two abnormal femora are still less strongly marked.

In the Museum of Comparative Zoology at Cambridge.

Telephorus rotundicollis, Say.

A specimen of this insect is deformed in the right antenna as shown in fig. 11. The third joint bears from its anterior surface an extra branch of six joints. The first joint of this antenna is much stouter than the corresponding joint on the left side. The second about half as long as the first and as stout. The outer half of the anterior border is flattened to receive the first joint of the abnormal branch. From its end arises the regular branch of nine joints all of which are normal except the first which gives off near the middle of its posterior border a slender spine-like process, half as long as the joint itself, curving outward and backward. The abnormal branch which is composed of six joints is directed forward and outward. The first three joints are flattened and very wide proportionately, the last three cylindrical. The first joint is about as long as the one which bears it and at its base about half as wide as long but considerably wider at tip. The next joint is a little narrower than the tip of the first. Its length about equals its width. The third is one-third narrower than the second and almost twice as long as wide. In the figure it is represented as folded upon itself. The fourth joint is somewhat longer than the third and half as wide, almost twice as long as the fifth which bears the sixth a long slender joint which curves inward and is as long as the fourth and fifth together.

Prionus californicus, Motsch.

Fig. 12 represents in a specimen of *Prionus californicus* one of the most remarkable monstrosities that has probably ever occurred among Coleoptera—remarkable not only for extent but also for symmetry.

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The left maxillary palpus bears two terminal joints. In the right maxillary and the left labial palpi the terminal joint is bifid. Each femur bears two tibiæ furnished with tarsi and claws. The second joint of the left maxillary palpus appears to be composed of two joints closely connate the anterior one much shorter than the other, each bearing a terminal joint of somewhat unequal lengths as shown by fig. 12 a. The terminal joint of the right maxillary palpus is deeply cleft at apex representing two joints connate at their basal halves; fig. 12 b. The terminal joint of the left labial palpus gives off anteriorly from its base a second joint half as long and as stout as the other and connate with it; fig. 12 c. The antennæ are normal. The anterior femora are normal in length and in articulation with their coxæ. They gradually widen from base to apex where they are more than twice as wide as a normal femur. Rhomboidal in section; the superior surface about one-third narrower than the inferior. The apices are dilated and deeply notched vertically, making two processes about as long as wide, each containing a normal cotyloid cavity with which the tibiæ are articulated in a normal manner. Fig. 12 d, shows the femur and articulations as seen at the end. Of the two tibiæ the anterior is somewhat shorter and about two-thirds as stout as the posterior which is probably the normal one. The spurs, tarsi and claws of both are similar. The middle femora are normal in length and form but about one-half stouter. The apices each contain one large cotyloid cavity. Into this which is twice as wide as a normal one is inserted a single broad condyle formed by coalescence of the condyles of the two tibia is shown in fig. 12 e. The anterior of these is somewhat shorter and about two-thirds as stout as the posterior. Its tarsi are also more slender and a little shorter. The articulation of the tibiæ with the left posterior femur is identical with that of the middle femora; fig. 12 e. The anterior of the two tibiæ and its tarsus are about five-sixths the length of the posterior and one-half more slender. In the right posterior femur the articulation, with the two tibiæ differs from all the others. The femur itself is about equal in thickness to the left but is a trifle more dilated at apex. This is not notched as in the anterior femora but truncate. Each tibia is inserted into a distinct cotyloid cavity separated by a considerable interval; fig. 12 f. The anterior of the two has been unfortunately broken off about one fourth of an inch from the femur. The structure of the under side presents no departure from the normal standard.

Collected by Mr. Morrison in Washington Territory.

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Eleodes pilosa, Horn.

In fig. 13 is shown a specimen of *Eleodes pilosa*, the right antenna of which is deformed; the ninth joint bearing on its end two branches of two joints each. Fig. 13 a, represents the antenna enlarged. The first seven joints are normal. The eighth and ninth equal each other in length being slightly shorter than the seventh. The eighth is as wide as long. The ninth at base is as wide as long; at the middle almost twice as wide. From the anterior part of the end arises a branch of two joints which are flattened, almost connate and a little more than half as wide as the ninth joint and as long as wide. The last joint is sinuate at tip. From the posterior part of the end of the ninth joint arises a branch also of two joints which equal in length those of the other branch but are more cylindrical and more nearly resembling normal terminal joints.

From Nevada. In Dr. Horn's Cabinet.

Helops sulcipennis, Lec.

Fig. 14 represents an anomaly in the right maxillary palpus of a specimen of *Helops sulcipennis*. Fig. 14 a, shows the normal palpus. The anomaly consists in the second joint bearing two terminal joints, one from the outer end of the anterior border and one from the tip. The first joint of this palpus is normal. The second nearly so excepting a dilation and flattening of the anterior border into which the terminal joint is inserted. The latter joint, which in the figure is represented as seen from below and is foreshortened as its plane is nearly perpendicular to the plane of the palpus proper. When viewed from the side it is precisely similar to the terminal joint in fig. 12 a. The other joint which arises from the tip of the second is really made up of two joints soldered together at the bases of their broad surfaces. It is consequently twice the thickness of the other terminal joint and at its free edge deeply grooved indicating the union of two joints, and presenting that silky appearance common to the free edge of the normal joint. It is shown in the figure as seen partially from below, partially from the side. The parts shaded are intended to represent the edges of the two joints in one, the dotted part the deep groove.

In Dr. Horn's Cabinet.

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EXPLANATION OF PLATE IV.

FIG. 1.—A *Calosoma triste*, Lec.; *a*, right antenna, greatly enlarged.

FIG. 2.—Left middle leg of a *Cychrus angusticollis*, Fitch; enlarged about twice.

FIG. 3.—Left middle leg of a *Metrius contractus*, Esch.; *a*, colyloid cavities of femur as seen from the end; enlarged about three times.

FIG. 4.—Left middle leg of a *Pasimachus punctulatus*, Hald.; enlarged about twice.

FIG. 5.—Head and thorax of a *Scarites substriatus*, Hald.; *a*, lateral view; enlarged almost twice.

FIG. 6.—Right anterior leg of a *Dyschirius globulosus*, Say; *a*, normal left leg; greatly enlarged.

FIG. 7.—Left middle leg of a *Chlænius diffinis*, Chaud.; enlarged over three times.

FIG. 8.—Right antenna of a *Lichnanthe vulpina*, Hentz; enlarged about seven times.

FIG. 9.—Right antenna of a *Polyphylla decemlineata*, Say; *a*, under side of double club; *b*, normal left antenna; enlarged about six times.

FIG. 10.—Under side of a *Strategus antæus*, Fabr.; very little larger than life.

FIG. 11.—Right antenna of a *Telephorus rotundicollis*, Say; enlarged about four times.

FIG. 12.—A *Prionus californicus*, Motsch.; life size; *a*, left maxillary palpus; *b*, right maxillary palpus; *c*, left labial palpus; *d*, articulation of anterior femora with tibiæ; *e*, articulation of middle and left posterior femora with tibiæ; *f*, articulation of right posterior femur with tibiæ; greatly enlarged.

FIG. 13.—An *Eleodes pilosa*, Horn; *a*, right antenna, greatly enlarged.

FIG. 14.—The right maxillary palpus of a *Helops sulcipennis*, Lec.; *a*, a right normal palpus, greatly enlarged.

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Short Studies of North American COLEOPTERA.

BY JOHN L. LECONTE, M. D.

Under this title I have brought together some tables of genera containing easily recognized but neglected species, which have so accumulated in local collections as to be inconvenient from their number. Several of the tables were prepared two or three years ago and were intended as the bases of more or less extensive monographs, which want of time has prevented me from elaborating. Though the descriptions are apparently expressed in but few words, it will be found that the subordination of characters used, in reality, indicates all the most important specific differences, and I hope, therefore, that the student will find no difficulty in identifying the species found in his neighborhood. I have also availed myself of the opportunity to describe a few remarkable species, which represent, sometimes new genera, sometimes those not before recognized in our fauna.

I must express my special thanks to Mr. G. W. Belfrage for a complete set of the species collected by him in Texas, and to Mr. E. A. Schwarz for a large series from the same State, and kindly submitted to me by permission of Mr. C. V. Riley, U. S. Entom. Commission; also to Mr. A. Bolter for many species from California and Florida.

Full lists of the Texas species, will I hope soon be ready for publication, like those of Michigan and Florida species prepared by Messrs. Hubbard and Schwarz,* which have added so greatly to the knowledge of geographical distribution of Coleoptera in this country.

DROMIUS Bon.

D. atriceps.—Very elongate, shining pale yellow. Head large rhomboidal, black; antennæ not longer than the head and prothorax, yellow, rather stout; palpi yellow, last joint elongated, compressed at the tip, so as to appear pointed when viewed edge-wise; anterior outline of mentum indistinct. Prothorax narrower and shorter than the head, longer than wide, narrowed behind, hind margin rounded, basal angles obtuse not prominent, dorsal line deep, basal impressions distinct. Elytra nearly twice as long as the head and prothorax, very broadly truncate behind and shorter than the abdomen; humeri rounded, not at all prominent; striæ obliterated, scutellar puncture large;

* Proc. Am. Philosophical Society, 1878.

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about the middle is a broad ill-defined transverse fuscous band. Beneath entirely yellow, tarsi filiform, claws serrate. Length 4 mm.

Bayou Sara, La.; E. A. Schwarz. A singular insect having the appearance of the European *Demetrius atricapillus*.

AXINOPALPUS Lec.

A. nigriceps.—Elongate, depressed, testaceous, trunk, side margin of elytra and prothorax darker; head blackish piceous, alutaceous and finely punctulate; eyes moderately convex. Prothorax wider than long, narrowed behind, sides sinuate towards the base, hind angles rectangular, reflexed. Elytra faintly striate, with two indistinct dorsal punctures; scutellar region usually dusky. Length 3 mms.

Allied to the Californian *A. fusciceps* but larger, with the head somewhat broader and the eyes more convex. The mouth, palpi, antennæ and legs are entirely testaceous.

There seem to be no differences between *A. biplagiatus* and *californicus*. The specimens from the Pacific States are slightly darker in color, the antennæ and legs being sometimes piceous. A specimen was found at Veta Pass, Colorado, by Mr. Schwarz, so that the range is complete from the eastern to the western side of the continent.

LOXOPEZA Chaud.

L. testacea.

I have given this name to a Texan form collected by Mr. Belfrage, but which differs in no respect, except color, from *L. tricolor*. Following the arrangement adopted by Baron de Chaudoir, it is necessary at present that it should be known by a distinct name; but a renewed study of the genus with larger series of the Mexican species may result in a diminution of the valid ones to be retained.

AMARA Bon.

A. (Percosia) fortis.—Robust oval, convex, shining black. Prothorax one-half wider than long, much rounded on the sides, narrower at apex, but widest in front of the base, which is rugose and slightly punctured with two distinct impressions each side; the outer one is triangular and extends almost to the angle, which is obtuse, and sometimes very slightly rounded. Elytral striæ slightly punctured, interspaces feebly convex. Episterna of the metathorax broader at base than long, strongly and sparsely punctured; sides of metasternum and ventral segments punctured. Antennæ, palpi and legs tinged with reddish. Length 10—11.5 mms.

Texas, Belfrage. Differs from *A. obesa* by the more robust form, by the prothorax more rounded on the sides and wider in front, and finally by the much broader metathoracic episterna and shorter metasternum. It seems to represent the south European *A. sicula*.

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BADISTER Clairv.

The species of Badister known in our fauna may be tabulated as follows:

Elytral striæ fine, interspaces broad and flat.....2.
Elytral striæ deep, interspaces narrow, convex; antennæ and legs rufo-testaceous, elytra rufo-piceous, clouded behind.....1. **notatus.**
2.—Elytra spotted.....3.
Elytra not spotted.....5.
3.—Prothorax black, legs and elytra orange, the latter behind the middle mostly black.....4.
Prothorax legs and elytra bright yellow; the latter with broad medial band interrupted at the suture, and an apical blotch iridescent black; basal impressions of prothorax shallow, but broad.....2. **pulchellus.**
Prothorax legs and elytra bright yellow; the latter with the black markings confluent longitudinally from the fourth to the eighth stria, basal impressions of prothorax shallow and small; (differs from the European specimens only by the prothorax very slightly more flattened near the hind angles, and by the spots being more broadly confluent).
3. **bipustulatus.**
4.—Side margin of prothorax a little wider and more reflexed near the base; broad elytral medial band and apical spot confluent longitudinally from the fourth to the sixth stria.....4. **maculatus.**
Side margin of prothorax not wider near the base; elytral spots confluent from the fourth to the ninth stria, forming the pattern described below.....5. **elegans** n. sp.
5.—Black, or nearly so, legs yellow.....6.
Prothorax and legs testaceous, elytra piceous, suture, side margin, epipleuræ and base testaceous; hind angles of prothorax broadly rounded, side margin fine, scarcely broader near the base.....6. **obtusus.**
Piceous; head as wide as prothorax; hind angles of prothorax obtuse, slightly rounded, base obliquely truncate each side, side margin slightly wider and more reflexed near the base.....7. **ferrugineus.**
Entirely black; head narrower than prothorax, which is formed as in *ferrugineus* but less narrowed behind.....8. **anthracinus.**
6.—Hind angles of prothorax very much rounded.....9. **flavipes.**
Hind angles of prothorax obtuse, feebly rounded; side margin narrow, not more reflexed towards the base; margins piceous.....10. **micans.**
Hind angles of prothorax obtuse, not rounded; side margin wider and more reflexed near the base; margins piceous.....11. **reflexus** n. sp.

3. **B. bipustulatus** *Fabr.*

I have two specimens from Vancouver Island, which agree perfectly with a European specimen, except in having the prothorax a little flatter at base near the angles, and the black elytral spots larger and confluent for the greater part of the width.

5. **B. elegans.**—Shining black, base of antennæ, palpi and legs reddish-yellow; prothorax a little wider than long, flat, sides broadly rounded, margin narrow, piceous and not wider at the base, which is rounded; hind angles obtuse, much rounded, basal impressions very shallow. Elytra one-third wider than

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the prothorax, elongate-oval, emarginate at base, striæ fine, interspaces flat, dorsal punctures two, adjacent to the second stria; the base nearly to the middle, epipleuræ, side margin, suture, and a common circular spot near the tip are orange color, the rest of the surface iridescent black. Length 5.5 mms.

Three specimens, Bosque Co., Belfrage. Closely resembles *B. maculatus*, and differs only by the side margin of the prothorax not being wider towards the hind angles, and by the antennæ being piceous, with only the first and second joints yellow.

11. **B. reflexus.**—Piceous shining, legs pale; margin of prothorax and elytra piceo-testaceous, the latter with a slight metallic reflection, striæ fine, interspaces broad, nearly flat, third with two distinct dorsal punctures adjacent to the second stria; prothorax wider than long, trapezoidal, narrowed behind, sides more strongly margined than usual, margin wider and more reflexed near the base, which is oblique each side; hind angles very obtuse and rounded; basal impressions rather deep; antennæ piceous, tip of eleventh joint paler. Length 4 mm.

New York, Michigan, Louisiana. Confused in my collection with *B. micans*, from which it differs by smaller size and more strongly margined prothorax.

According to a typical specimen *B. submarinus* Motsch., differs from *ferrugineus* only by the size being smaller, (4.5 mm.), and the hind angles of the prothorax more distinctly marked. It seems to me only a slight variety.

HALIPLUS Latr.

H. tumidus.—Broadly and acutely ovate, dull yellowish red, shining; prothorax punctured, more sparsely on the disc, more coarsely near the base. Elytra rapidly widened from the base for one-fifth the length, then obliquely rounded and narrowed to the tip; (widest part fully one-half wider than the base of the prothorax); striæ composed of rather coarse punctures becoming smaller behind, interspaces each with a row of small distant punctures; spots narrow, piceous, ill-defined, presenting the appearance of a sutural stripe, with two oblique interrupted branches and a marginal blotch near the tip. Prosternum coarsely punctured, perpendicularly declivous in front, deeply and broadly sulcate, strongly margined at the sides, slightly convex along the middle for the hinder half of its length; metasternum with a deep square impression, the sides of which are elevated, sparsely and coarsely punctured, coxal plates less coarsely punctured. Length 3 mm.

One specimen, Bosque Co., Texas; Belfrage. Easily known by the more ventricose form and peculiar sternal impressions; the prothoracic side pieces are sparsely punctured.

XENISTUSA n. g. (Tachyporini).

Antennæ inserted at the sides of the head in front of the eyes and a little inside of them; front not margined above the antennæ; the latter eleven-jointed, first joint nearly as long as the three following; outer joints gradually broader and transverse, last rounded at tip;

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eyes small, oval. Maxillary palpi four-jointed, last joint small, acicular. Head rounded, broadly concave in front. Prothorax wider than the head, deeply bilobed, lobes converging behind and covering the scutellum, rounded in front, triangular space between them membranous. Elytra a little longer than the prothorax, convex, sparsely pilose with long erect hairs, epipleuræ not distinct. Abdomen coriaceous, cylindrical, not margined, sparsely pilose with long erect hairs. Legs moderate, tarsi five-jointed, tibiæ somewhat compressed, spinose to a greater or less extent, first joint of middle and hind tarsi as long as the tibiæ, and longer than the remaining four united; claws slender.

This genus is nearly allied to *Trichopsenius* Horn, and has the same peculiar connate metacoxal plates; it differs chiefly by the prothorax not wider towards the base with an apical membranous space, and by the elytra with a depressed suture and lateral groove. Examination of well preserved specimens of Trichopsenius shows that all the tarsi are five-jointed, and the first joint of the middle and hind pair longer than the others united, elongate-cylindrical.

X. cavernosa.—Brown, shining, sparsely pilose with erect long hairs; base of antennæ, palpi, legs and abdomen testaceous; front slightly and broadly concave; prothorax most profoundly bilobed, about twice as wide as long, prolonged behind at the middle; elytra twice as long as the prothorax, deeply impressed along the suture, and with a deep but short groove near the sides. Abdomen twice as long as the elytra, convex, inflated, sparsely punctulate. Length 1.6 mm.

Columbus, Texas; E. A. Schwarz; one specimen with *Termes;* other specimens were seen, but escaped. From the form and size of the abdomen this is evidently a ♀.

X. fossata.—Broader subdepressed, (resembling in general appearance an Anthobium), dark brown shining, sparsely pilose with long erect hairs; base of antennæ, palpi and legs testaceous. Head broadly and deeply concave in front. Prothorax three times as wide as long, with a large very deep triangular excavation extending from the front margin to the base, which is broadly rounded. Elytra more than twice longer than the prothorax, very deeply sulcate along the suture, and with a lateral groove as in the preceding; exposed part of abdomen hardly equal in length to the elytra, sparsely punctulate. Length 1 mm.

One specimen with the preceding, of which it is perhaps the ♂, although from the difference in the form of the prothorax I think it unlikely.

X. pressa.—Of the same form as *X. fossata*, but smaller, dark brown, shining, sparsely pilose with long erect hair, palpi and legs somewhat testaceous. Head but slightly concave in front. Prothorax transverse oval, fully three times wider than long, broadly but feebly impressed in front, membrane

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quite visible along the anterior margin between the prothorax and the head. Elytra with an elongate scutellar excavation, continued along the suture for one-fourth the length, then flattened; sutural region behind the excavation flat, disc of the elytra deeply and widely excavated, outer margin of excavation rectilinear, inner margin curved in the arc of a circle. Exposed portion of abdomen not longer than the elytra, sparsely punctulate; hind tibiæ broader and more compressed than in the two preceding forms. First joint of hind tarsi compressed, more than twice as wide as the following ones, outer surface concave. Length 1 mm.

One specimen with the two preceding. The differences between this and the preceding prevent me from viewing *X. cavernosa* and *fossata* as sexual forms of the same species; but it is quite possible that this genus, living with *Termes*, may have assumed to some degree the polymorphous characters exemplified in that remarkable type. However that may be, I must be content for the present to describe these three individuals, two ♂ and one ♀, under separate specific names, and to indicate the possibility that with increased knowledge they may be grouped under one.

LEPTACINUS Er.

Palpi with last joint acicular; middle coxæ separated by meso- and metasternum; front tarsi not dilated.

A.—Maxillary palpi with fourth joint slender, scarcely shorter than the third; lateral margin of prothorax acute, not united with the lower line; head beneath normal.....1. **flavipes.**

B.—Similar to **A**, but fourth joint of maxillary palpi much shorter than the third, conical, acute.....2. **grandiceps.**

C.—Maxillary palpi with last joint very small, acicular; lateral edge of prothorax acute.....3. **brunnescens** n. sp.

D.—Maxillary palpi with last joint very small, acicular; lateral edge of prothorax not acute in front of the middle.

Prothorax with distinct angles.....2.
Prothorax elongate-oval.....4. **longicollis.**
2.—Head coarsely punctured beneath.....3.
Head feebly punctured.....5. **parcus.**
3.—Sides of prothorax with confused punctures.....4.
Prothorax with dorsal series of punctures.....5.
4.—Elytra entirely piceous black.....6. **nigripennis.**
Ferruginous, elytra piceous with broad apical yellow margin; abdomen usually piceous.....7. **ruficollis.**
5.—Piceous black, prothorax with dorsal series of 8—10 punctures; legs pale. 8. **nigritulus** n. sp.
Testaceous, smaller, dorsal series of six punctures....9. **pallidulus** n. sp.
Piceous, prothorax with dorsal series of 12—14 punctures; elytra testaceous, dusky towards the base; legs dark, front tarsi somewhat dilated. 10. **seriatus** n. sp.

E.—Maxillary palpi with fourth joint slender, not shorter than the third; head beneath flattened, with marginal lines at the side...11. **cephalicus** n. sp.

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Two European species *L. parumpunctatus* Gyll., and *batychrus* Gyll., are mentioned by Fauvel as occurring in North America, but I have seen no specimens of them.

3. **L. brunnescens.**—Very elongate; head piceous, longer than wide, sides parallel, hind angles strongly rounded, upper surface sparsely but strongly punctured, with a smooth medial space; under surface coarsely sparsely punctured. Antennæ but little longer than the head, gradually but strongly thickened externally. Prothorax castaneous, one-half longer than wide, sides straight, slightly converging behind, base broadly rounded, apical margin oblique each side, front angles obtuse, much rounded; disc with a broad smooth dorsal stripe, limited each side by a series of well-marked punctures, sides sparsely covered with similar punctures. Elytra paler red-brown sparsely and distinctly punctured. Abdomen piceous, dorsal and ventral segments sparsely punctulate and pubescent. Legs ferruginous. Length 6—7 mm.

Gilroy, California; three specimens.

Other specimens from San Mateo and Mojave Desert differ by the punctures of the prothorax rather smaller, and the head slightly wider behind. In two of them the prothorax is of a bright brownish ferruginous, of the same color as the elytra.

8. **L. nigritulus.**—Piceous black, shining, sparsely pilose; antennæ and feet ferruginous. Head convex, elongate-ovate, wider behind, sparsely and very coarsely punctured each side, frontal grooves long and deep; under surface sparsely and coarsely punctured. Antennæ a little longer than the head. Prothorax more than one-third longer than wide, narrower behind, rounded at base and apex, angles much rounded, disc moderately convex, with dorsal series of 8—10 punctures, sides with not more than 8—12 distant punctures. Elytra as long as the prothorax, sparsely punctured with the punctures arranged somewhat in rows. Abdomen sparsely punctulate. Length 3.4 mm; .13 inch.

Michigan, Messrs. Hubbard and Schwarz; also in Canada.

9. **L. pallidulus.**—Testaceous shining, head and abdomen darker. Head convex, elongate, slightly wider behind, coarsely and sparsely punctured each side, frontal grooves long and deep. Antennæ not longer than the head. Prothorax one-third longer than wide, slightly narrowed behind, base and apex rounded, dorsal rows composed of six punctures; with a curved lateral row as in many *Xantholinus*. Elytra distantly punctured in rows. Abdomen feebly and sparsely punctulate. Length 2.2 mm.

One specimen, Fort Yuma, California. Except that the last joint of the maxillary palpi is small, slender, aciculate, and much shorter than the turbinate third joint, this and the preceding species would be placed in *Xantholinus*, with which they agree in the sculpture of the head and prothorax.

10. **L. seriatus.**—Slender shining black, sparsely hairy, antennæ and legs red-brown, elytra pale yellow, blackish in front of the middle. Head more than one-half longer than wide, narrower in front, convex, base truncate, hind angles broadly rounded, above and below sparsely coarsely punctured, frontal grooves deep and long; there is an undefined medial smooth space extending

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nearly to the occiput; on the under surface the punctures at the sides are arranged in an irregular double row. Antennæ but little longer than the head, only slightly thickened externally. Prothorax as long as the head, not narrower in front; dorsal series of 12—14 punctures, lateral series curved as in *Xantholinus*. Elytra pale yellow, blackish towards the base, punctures distinct, not fine nor dense, arranged somewhat in series; sutural stria very fine. Abdomen sparsely punctulate. Length 4.8 mm.

Detroit, Michigan; one specimen, Hubbard and Schwarz; also found in Canada. Seems related to the European *L. parumpunctatus* Gyll., which is cited by Fauvel, Faune Gallo-Rhenane, iii, 375, as found in North America, but the dorsal series of the prothorax is composed of a large number of punctures.

11. **L. cephalicus.**—Less slender, piceous black, shining. Head about one-half longer than wide, narrower in front, hind angles and base strongly rounded; above convex, smooth, with a few very large punctures each side; frontal grooves long and deep; beneath with a few large punctures and also with distinct marginal lines at the sides, and a finer medial one bifurcating in front. Prothorax oblong with strongly rounded angles, thus becoming almost oval, nearly one-half longer than wide; smooth with dorsal series of five large punctures and a group of seven lateral punctures. Elytra piceous, darker at base, with strong sutural stria, and three ill-defined series of punctures. Abdomen sparsely finely punctured. Legs and antennæ rufo-testaceous, the latter scarcely subgeniculate, outer joints somewhat rounded, feebly transverse. Length 4.8 mm.

Columbia, South Carolina; Dr. Zimmermann; one specimen.

I have placed this singular insect in the present genus because the middle coxæ are separated and the front tarsi slender. The last joint of the maxillary palpi is slender and acicular, though not shorter than the third, as is the case in *L. flavipes*.

METAPONCUS Kraatz.

Maxillary palpi with the last joint very small, acicular; middle coxæ contiguous; front tarsi not dilated.

In addition to these characters this genus is readily known by the antennæ being but little longer than the head, strongly geniculate, gradually but strongly thickened externally, with the outer joints about three times as wide as long.

M. floridanus.—Subcylindrical, brown, shining, slightly hairy. Head twice as wide as long, convex, narrower in front, base truncate, hind angles strongly rounded, upper surface distinctly but not densely punctured, with a broad smooth frontal stripe, under surface sparsely coarsely punctured; antennæ paler, a little longer than the head, outer joints gradually much wider. Prothorax as long as the head but not narrower, distinctly not densely punctured, with a broad smooth dorsal stripe. Elytra sparsely punctured, sutural stria obsolete. Abdomen finely not densely punctulate, tip and legs paler. Length 2.4 mm.

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Enterprize, Florida; Messrs. Hubbard and Schwarz; one specimen; May 26th.

LEPTOLINUS Kraatz.

Maxillary palpi with third joint tumid, obconical, last joint very small, acicular; front tarsi broadly dilated.

Dull brownish black; head densely aciculate, prothorax densely punctured with smooth narrow dorsal space; antennæ, legs and elytra red, the latter dusky near the scutellum.....1. **rubripennis** n. sp.
Very small, testaceous, shining, head and prothorax very sparsely punctured towards the sides; elytra sparsely punctured.....2. **pusio** n. sp.

1. **L. rubripennis.**—Brownish black, nearly opaque, thinly clothed with short brown pubescence. Head twice as long as wide, sides parallel, hind angles and base rounded, above and beneath slightly convex, densely not coarsely aciculate, without smooth frontal line, or other sculpture; antennæ rufous, extending half the length of the prothorax, gradually but not strongly thickened externally, outer joints nearly twice as wide as long. Prothorax not longer, but a little narrower than the head, rather densely punctured, with a narrow smooth dorsal stripe. Elytra densely more finely punctured, dull red, blackish about the scutel, sutural stria well marked. Abdomen above and beneath very finely and densely punctulate, tip yellowish red; hind margins of ventral segments and legs of the same color. Length 6.2 mm.

♂.—Last ventral acutely incised and longitudinally impressed.

Middle and Western States. Mr. Fauvel has named it for his correspondents *L. rubripennis.*

2. **L. pusio.**—Very small, slender, pale yellow, shining. Head rather convex, nearly twice as long as its width, smooth with a few small scattered punctures each side; sides nearly parallel, base truncate, hind angles narrowly rounded; under surface very sparsely punctured. Prothorax not longer nor narrower than the head, with a few scattered punctures each side. Elytra sparsely finely punctured, sutural stria very fine. Abdomen sparsely punctured and pubescent. Length less than 2 mm.

Columbia, S. C.; Dr. Zimmermann; one specimen. The palpi, antennæ and front tarsi are just as in the preceding species; but I am uncertain if the middle coxæ are separate or contiguous. The small size and great age of the specimen prevent me from endeavoring to remount it. It is the smallest species of the tribe known to me.

XANTHOLINUS.

A.—Upper marginal line of prothorax deflexed, and confluent with the lower one in front.
Prothorax with dorsal series of a few fine punctures.....1. **cephalus.**
Prothorax without dorsal punctures.....2. **fulgidus.**
B.—Upper marginal line of prothorax separate from the lower one, and not deflexed in front.
Dorsal series of 4—6 punctures; color dark.....2.
Dorsal series of 5—6 punctures; color pale.....3.
Dorsal series of 10—12 punctures.....4.

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2.—Black; elytra rather coarsely punctured; head with a coarsely punctured lateral groove.....3. **obsidianus.**
Black; antennæ legs and elytra pale; elytra coarsely punctured; head with finely punctured lateral groove.....4. **temporalis** n. sp.
Black; elytra piceous, more finely punctured; head with coarsely punctured and feebler lateral groove.....5. **picipennis** n. sp.
Black; antennæ legs and elytra ferruginous, the last piceous at base; head without lateral groove.....6. **dimidiatus** n. sp.
3.—Larger and stouter, head piceous.....7. **emmesus.**
a. Smaller and more slender; head piceous, elytra and abdomen darker than prothorax; *fusciceps* Fauvel.
4.—Piceous-black, prothorax not paler.....5.
Brown-testaceous, head darker.....7.
5.—Head beneath coarsely and deeply punctured.....6.
Head beneath feebly punctured; above very sparsely and coarsely punctured at the sides.....8. **gularis** n. sp.
6.—Elytra piceous, legs testaceous.....9. **obscurus.**
Elytra bright red, legs rufo-testaceous.....10. **sanguinipennis** n. sp.
Smaller; elytra yellow, legs pale-testaceous.....11. **pusillus.**
7.—Gular sutures deep, as in all the preceding species.....12. **hamatus.**
Gular sutures very fine.....13. **nanus** n. sp.

The European *X. punctulatus* Payk., is said by Fauvel, Faun. Gallo-Rhenane, iii, 386, to occur in North America, but I have seen no specimen of it.

1. **X. cephalus** Say, is found also in California.

2. **X. fulgidus** Fabr., has been introduced from Europe.

4. **X. temporalis.**—More slender than *X. obsidianus*, piceous, antennæ, legs, sides and tip of elytra piceo-testaceous; elytra sparsely coarsely punctured, punctures arranged in nearly regular rows. Head moderately convex, smooth, sparsely and coarsely punctured at the sides, inner frontal grooves long and deep; under surface very sparsely punctured; sides with a broad shallow longitudinal groove, distinctly margined and marked with a few shallow punctures. Prothorax with dorsal series 4—5 punctured, lateral series punctured, with a large puncture nearer the margin as usual. Dorsal segments sparsely punctulate in front, nearly smooth behind. Length 4.7 mm.

Cedar Keys, Florida, Mr. Hubbard. Differs from *X. obsidianus* by smaller size, more slender form, by the lateral grooves of the head less punctured, and by the large punctures of the upper surface of the head being fewer, and not mixed with small punctures.

5. **X. picipennis.**—Of the same form and size as *X. obsidianus*, piceous, black; antennæ dark brown, legs ferruginous; elytra piceous, paler at the margins, more finely not densely punctured. Head moderately convex, scarcely one-half longer than wide, hind angles much rounded, above very coarsely punctured, with a large median space smooth; the inner pair of frontal grooves deep and long, the outer ones not visible; under surface very sparsely coarsely punctured, with a lateral band of confused punctures, and distinct marginal edge. Prothorax as long as the head, oblong, with rounded angles, dorsal

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series of 4 punctures, lateral series curved as usual, of 8—9 punctures; basal edge sometimes rufo-piceous. Dorsal segments nearly smooth, hind margins piceous; ventral segments dark piceous, tip rufo-piceous. Length 5.2—6.2 mm.

Abundant in various parts of California. The head of the ♂ is a little larger and more nearly parallel on the sides than that of the ♀.

6. **X. dimidiatus.**—More slender than *X. picipennis*, piceous black, antennæ and legs dark ferruginous; elytra ferruginous, rather indistinctly finely punctured, blackish for the anterior half. Head moderately convex, about one-half longer than wide, hind angles rounded; upper surface smooth at middle, sparsely and coarsely punctured at the sides; inner frontal grooves long and deep, the outer pair represented by a group of punctures near the eyes; under surface very sparsely and coarsely punctured, lateral edge obtuse much less defined than in *X. picipennis*. Prothorax oblong with rounded angles, one-half longer than wide, slightly narrowed behind; dorsal series 3—4 punctured, lateral series 7—9 punctured, curved as usual. Elytra with a dorsal series of fine but regular punctures. Dorsal segments smooth, piceous, hind margins paler; ventral segments more broadly margined with pale piceous; tip pale. Length 5.6 mm.

San Bernardino, and Mojave Desert, California. I have seen but two specimens, collected by Mr. Crotch.

7. *a.* **X. fusciceps.**

Mr. Fauvel has given this name to a small race of *X. emmesus* (4.5 mm.), which does not seem to differ otherwise. It has an equally wide distribution, being found in the Middle, Western and Southern States.

8. **X. gularis.**—Slender, black, antennæ legs and elytra dark red, the last distinctly and sparsely but not deeply punctured, almost in rows. Head convex, elongate, suboval, rounded behind, very sparsely punctured at the sides, inner frontal grooves long and deep, outer or ocular ones short; under surface with a few scattered coarse punctures, nearly smooth behind. Prothorax elongate-oblong with much rounded angles, dorsal series of 9—10 strongly marked punctures, lateral series curved, well defined, of 9—10 punctures; between the two and near the front margin is a group of four punctures; likewise some near the front angles. Abdomen dark piceous, dorsal segments finely distinctly punctured; ventral segments more strongly punctured, tip rufo-piceous. Length 7.5 mm.

Detroit, Michigan, one specimen, Messrs. Hubbard and Schwarz. Differs from *X. obscurus* chiefly by the less punctured head, without any trace of a smooth lateral line, which in that species represents the temporal margin of *obsidianus*, etc.

9. **X. obscurus** Er.

Varies greatly in size, and has a very wide distribution from Lake Superior and Canada to California.

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10. **X. sanguinipennis.**—Slender, shining black, antennæ legs and elytra ferruginous, the last strongly but sparsely punctured. Head oblong, one-half wider than long, hind angles rounded, upper surface with large scattered punctures, and an undefined frontal smooth space; frontal and ocular grooves very short, under surface punctured like the upper one, without trace of lateral groove or margin. Prothorax one-half longer than wide, angles rounded, sides parallel; dorsal series 10—12 punctured, with some confused punctures near the base and tip; lateral series irregular in one specimen, regular in two, about 8—10 punctured, with scattered punctures near the front angles. Dorsal segments piceous, finely not densely punctured; ventral segments rufo-piceous, similarly punctured. Length 6 mm.

Pennsylvania; I have examined three specimens.

13. **X. nanus.**—Closely resembles *X. hamatus*, but differs by the shorter frontal grooves, by the gular sutures being effaced, and the under surface of the head being smooth between the punctures instead of finely strigose. There are also some large punctures, between the dorsal and lateral series of the prothorax, which cause the lateral series to appear irregular. The elytra are more strongly punctured, and the punctures are not arranged in series. Length 4 mm.

San Diego, Cala.; one specimen. In the characters above given this species resembles *Leptacinus pallidulus*, but the last joint of the maxillary palpi is distinctly conical and not acicular.

LATHROBIUM Grav.

Prothorax uniformly punctured with distinct smooth dorsal line; elytra densely punctured, front tibiæ dilated and obliquely grooved on inner side; sixth ventral prolonged behind in ♀; ♂ sixth ventral truncate, seventh broadly divided; front thighs thickened and armed with a tooth, or sinuate on the lower margin.....2.

Prothorax (except in *politum*), with dorsal series of close set punctures, sides sparsely punctured; elytra punctured more or less regularly in rows; head usually very sparsely punctured, sides parallel behind the eyes, base and hind angles rounded, sometimes nearly truncate; front angles of prothorax more distinct than in the species of the other groups, sometimes scarcely rounded; hind tarsi with second joint not longer, or scarcely longer than the first. Front tibiæ not dilated, and but feebly grooved on the inner side; front thighs thickened, not sinuate nor toothed on lower margin.....11.

Prothorax with very narrow dorsal line, punctures uniform; elytra densely punctured; epipleuræ without marginal stria;* second joint of hind tarsi not much longer than the first; front tibiæ obliquely sulcate near the base to fit the obtuse tooth of the front thighs; ♂ sixth ventral slightly prolonged at the middle; seventh widely divided into two broad triangular valves; 10 mm.: Northern States.....1. **grande.**

* In all the other species the epipleuræ have a distinct stria near the extreme margin, in addition to the line which separates them from the dorsal part of the elytra.

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2.—Head semicircularly rounded behind the eyes. very sparsely punctured...3.
Head longer, more oval, less semicircularly rounded behind, more thickly punctured; color black, antennæ brown, legs ferruginous. .....4.
Head truncate behind, with rounded angles.....6.

3.—♂ sixth ventral deeply and acutely incised; 6—7 mm.; Northern and Western States, Kansas.....2. **punctulatum.**
♂ sixth ventral much less deeply incised; 6 mm.; Southern States. 3. **angulare.**
♂ sixth ventral deeply incised; smaller, entirely black; 5.3 mm.; Mass.; Lake Superior.....4. **nigrum.**
♂ sixth ventral deeply incised, fifth strongly impressed; still smaller, black, antennæ, legs and elytra ferruginous, the last more strongly punctured; 4.5 mm.; Detroit, Mich.; (one specimen).....5. **bicolor** n. sp.
♂ sixth ventral with a small acute incision, fifth with a rounded apical impression; head rather longer, color black, shining, antennæ brown, first joint testaceous, legs yellow, elytra less densely punctured; 4.5 mm.; Michigan; Florida.....6. **nitidulum** n. sp.

4.—Head and elytra more coarsely punctured.....5.
Head and elytra finely punctured; black; legs black, rarely ferruginous; 5.8 mm.; Vancouver; B. Columbia.....7. **finitimum** n. sp.

5.—Head more densely punctured; ♂ sixth ventral acutely carinate behind, and triangularly emarginate; black, antennæ and legs brown; 8 mm.; California, (San Mateo, Gilroy).....8. **puncticeps** n. sp.
Head less densely punctured, especially in front; ♂ sixth ventral broadly and feebly emarginate; black, antennæ, legs and elytra brown, not punctured in rows; 6.5—8 mm.; California, (S. Mateo, S. Diego). 9. **jacobinum.**
Head less densely punctured; elytra punctured almost in rows; ♂ sixth ventral broadly and feebly emarginate, fifth with a small impression; black, antennæ and legs brown; 6.5 mm.; Vancouver; California. 10. **subseriatum** n. sp.

6.—Cylindrical convex, head sparsely punctured.....7.
Less convex, almost depressed.....10.

7.—Elytra as long as the prothorax.....8.
Elytra much shorter than the prothorax, coarsely and distantly punctured, color uniform brown; ♂? 7.8 mm.; Illinois.....11. **brevipenne.**

8.—♂ sixth ventral emarginate.....9.
♂ sixth ventral subcarinate at tip, not emarginate; black, antennæ and legs brown, the former stouter than usual, with rounded joints; 8.2 mm.; Western States.....12. **armatum.**

9.—♂ sixth ventral squarely emarginate, with a medial smooth space limited by short longitudinal impressions; fifth ventral feebly impressed; black, antennæ stout with rounded joints, legs piceous or ferruginous; 5.4 mm.; Oregon; Mass.....13. **othioides** n. sp.
♂ sixth ventral broadly and deeply emarginate, and deeply longitudinally impressed; fifth longitudinally but feebly impressed; black, antennæ and legs brown; 7.5 mm.; Mass.; N. Y.....14. **simile.**
♂ sixth ventral broadly semicircularly emarginate, and longitudinally impressed; fifth broadly impressed; black, antennæ and legs brown; 5.5—6.5 mm.; Lake Superior; Illinois.....15. **concolor.**

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♂ sixth ventral feebly emarginate, with a faint very narrow longitudinal impression; black, antennæ and legs blackish-piceous; 6.5—7 mm; Lake Superior; Mass.....16. **simplex** n. sp.

♂ sixth ventral semicircularly emarginate, then semicircularly impressed, broadly flattened at the middle; fifth with a longitudinal impression, which is rounded in front, and extends from the hind margin for one-half the length; black, antennæ and legs brown, the former stout, with rounded joints; 4.6 mm.; N. Y.; Can.; Mich.; Col. .....17. **tenue.**

10.—Piceous, antennæ slender, legs and hinder half of elytra ferruginous; the last as strongly punctured as the prothorax; ♂? 5.5 mm.; Vancouver, (one specimen).....18. **divisum** n. sp.

Piceous, antennæ brown, legs yellow, elytra more finely and sparsely punctured; ♂ fifth and sixth ventrals broadly emarginate, the former more feebly; 8 mm.; Louisiana, (one specimen)..... .....19. **pedale.**

Very small, testaceous yellow, elytra rather strongly punctured; ♂ with ventrals 2—6 feebly channeled, sixth with two coarsely granulated black spots; hind tarsi but one-half as long as the tibiæ, joints 1—4 equal; 2.5 mm.; Detroit, Mich.....20. **debile** n. sp.

11.—Sides of head and prothorax very sparsely punctured.....12.

Sides of head and prothorax more densely punctured; elytra finely punctured in rows; which are confused at the sides and tip; color uniform chestnut brown; ♂ sixth ventral acutely and deeply triangularly emarginate; 6 mm.; Middle States.....21. **politum.**

Head very sparsely, but sides of prothorax less sparsely punctured, elytra strongly but not coarsely punctured, punctures confused, not placed in rows; ventral segments uniformly finely and densely punctured; color dark brown, antennæ and legs ferruginous; ♂ sixth ventral with a small triangular emargination, fifth obsoletely impressed longitudinally; 4.8 mm.; Mass.....22. **confusum** n. sp.

12.—Elytra with rows of coarse punctures slightly confused at sides and tip; form cylindrical convex.....13.

Elytra with rows of fine punctures, confused at sides and tip.....14.

Elytra with imperfect and distant rows of punctures; hind tarsi longer than usual, but little shorter than the tibiæ.....17.

13.—Black, antennæ and legs red-brown; ♂ sixth ventral broadly emarginate; fifth slightly impressed at tip; (fourth transversely impressed, perhaps accidentally); black, antennæ brown, legs dull yellow; 5.8 mm.; North Carolina, (one specimen).....23. **seriatum.**

Brown, antennæ, legs and elytra paler; ♂ sixth ventral triangularly impressed behind, and less emarginate than in *seriatum;* 6—7 mm.; Middle and Western States.....24. **longiusculum.**

14.—Fifth and sixth ventrals less densely punctured.....15.

Fifth ventral finely and densely punctured like the fourth.....16.

All the ventrals sparsely punctured; color black, antennæ and legs red-brown; 6 mm.; Florida, (one specimen).. .....25. **parcum** n. sp.

15.—Black, rather finely punctured, antennæ and legs brown; ♂ sixth ventral slightly impressed longitudinally, deeply and narrowly emarginate behind, end of emargination rounded; 5.8 mm.; San Jose, Cal.

26. **californicum.**

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Ferruginous, head and elytra usually dark piceous; antennæ scarcely thicker externally; ♂ sixth ventral acutely incised behind; 4.5—5.6 mm.; Middle States to Vancouver.....27. **collare.**

Smaller and more slender, brown or ferruginous, antennæ stouter, thickened externally; ♂ fifth ventral slightly impressed and subemarginate behind; 3.5—4.8 mm.; Middle, Southern and Western States; Kansas. 28. **ambiguum** n. sp.

16.—Brown or ferruginous, head and elytra darker; ♂ sixth ventral feebly impressed, broadly triangularly emarginate behind; 4 mm.; Pa.; Fla.; Ks.....29. **ventrale** n. sp.

Ferruginous, abdomen piceous, last two segments ferruginous; elytra less punctured; ♂ sixth ventral slightly triangularly incised; 3.7 mm.; Pa.; S. C.; La.....30. **anale** n. sp.

17.—Testaceous yellow, sides of prothorax with coarse scattered punctures; ♂ sixth ventral with a small broad triangular emargination at tip; 3.8 mm.; Pa.; Fla.; Mich.; Col.....31. **pallidulum** n. sp.

Testaceous yellow, dorsal surface of abdomen more or less dusky; head sometimes brown; sides of prothorax with a curved line of punctures; 3.7 mm.; Arizona; Texas; two ♀.....32. **lituarium** n. sp.

Ferruginous, head, and frequently the basal half of elytra black, dorsal segments dusky; ♂ sixth ventral triangularly impressed, broadly emarginate behind; fifth slightly notched; 3.7 mm.; Pa.; La.; Fla.; Ks. 33. **dimidiatum.**

LIPAROCEPHALUS Mäklin.

Mr. Ulke has kindly given me a specimen from Unalaska, which agrees so perfectly with the description of *L. brevipennis* Mäklin, Bull. Mosc. 1853, 192, as to warrant my indicating a second species from California. They may be separated as follows:

Black above, dark brown beneath; head not wider than prothorax, which is but feebly narrowed behind, and not sinuate on the sides; basal angles obtuse, rounded; 2.7 mm.....1. **brevipennis.**

Brown, head wider than the prothorax, which is strongly narrowed behind, with the sides subsinuate near the base; basal angles rectangular, very slightly rounded; 3.6 mm.....2. **cordicollis** n. sp.

Of the second species I have one specimen collected at Mendocino, California, by Mr. A. Agassiz. Both specimens are males; the sixth ventral segment is bisinuate at the middle of the hind margin and fringed with hair in both; but much more strongly in the second; the seventh segment is larger in the first, and flattened along the middle in both, with the depression limited by fine elevated margins, which curve concavely towards the middle.

This is one of the most larva-like Staphylinide genera I have seen; the coxæ are large, conical, and scarcely separated either longitudinally or transversely; the elytra are barely half as long as the prothorax, not imbricated, but with the sutural angle much curved.

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These species are found on the sea-shore under seaweed, cast up by the waves.

STILICUS Latr.

Upper surface of head and prothorax densely punctulate.....2.
Upper surface of head and prothorax coarsely punctured.....3.
2.—Head semicircularly rounded behind, nearly smooth beneath; prosternum finely but strongly carinate; 5.3—7 mm.; Penna.; Ariz.....1. **tristis.**
Head quadrate behind the eyes, hind angles rounded, base emarginate, beneath densely rugosely punctured; prosternum very feebly carinate; blackish piceous, pruinose with very fine pubescence; 4.7 mm.; Cal.; Mo.; Mass.....2. **quadriceps** n. sp.
Head quadrate behind the eyes, base subtruncate, beneath densely rugosely punctured; prosternum feebly carinate; blackish piceous, finely pubescent, legs sometimes ferruginous; ♂ fifth ventral with an apical tooth; 4 mm.; D. C.; Tenn.; Cala.....3. **opaculus** n. sp.
3.—Head and prothorax rugosely punctured above.....4.
Head not rugosely punctured above, sparsely very coarsely punctured beneath, hind angles and base broadly rounded; prothorax with a broad smooth dorsal stripe; bronze-brown, apical margin of elytra and legs yellow; ♂ fifth ventral simple at hind margin; 4 mm.; Pa.; Ill.; La.; Fla.....4. **angularis.**
4.—Head beneath shining and very sparsely coarsely punctured; bronze-brown, apical margin of elytra yellow, legs darker yellow; head and prothorax less shining; ♂ fifth ventral with an apical tooth; 4 mm.; Mass.; N. Y.; Mich.....5. **dentatus.**
Head beneath shining and very sparsely punctured; elytra behind scarcely margined with yellow; legs dark yellow; head and prothorax not shining; ♂ fifth ventral with two small tubercles on hind margin; 4 mm.; Mass.; Mr. F. Blanchard.....6. **biarmatus** n. sp.
Head behind the eyes longer than wide, sides obliquely rounded; beneath densely rugosely punctured; head and prothorax not shining, apical margin of elytra and legs ferruginous-yellow; ♂ fifth ventral with an obsolete apical tooth; 4.4 mm.; Mass.; D. C.; Ill.....7. **rudis.**

The sixth ventral is emarginate in the ♂ of all these species.

The species under No. 2, that is, those with finely punctured head and prothorax extend from the Atlantic to the Pacific regions; those with coarse sculpture are found in the Atlantic region only. I therefore infer that in the preglacial epoch, the former occupied the circumpolar continent, or the western part of North America, while the latter inhabited the south-eastern or subtropical regions.

SCOPÆUS Er.

Besides the three species mentioned in the Crotch Check List, (two of which had been erroneously described by me as *Echiaster*), I have several others, from both sides of the continent, which are easily distinguished, but present no remarkable characters.

The following species, on account of the singular conformation of

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the hind legs of the ♂ is very peculiar in this family, and well worthy of description.

S. dentiger.—Slender, black, thinly clothed with extremely fine gray pubescence. Head convex, longer than wide, narrowed in front of the eyes, truncate at base, with the hind angles strongly rounded, surface almost imperceptibly punctulate, front feebly impressed, with two ill-marked punctures behind the impression, beneath finely punctured, gular stripe smooth. Antennæ blackish brown one half longer than the head, not thickened externally, outer joints about as long as wide. Prothorax elongate-oval, finely punctured, dorsal smooth stripe indistinct, slightly elevated near the base. Elytra as long as the prothorax, scarcely wider, similarly punctured, suture finely margined. Dorsal segments imperceptibly punctulate; ventral segments very finely punctulate. Legs blackish brown, finely punctured. Length 3 mm.

♂.—All the thighs thicker than in the ♀; hind thighs bent, concave beneath, armed at the inner end of the concavity (just beyond the trochanter), with a slender curved spine; curved edge thence nearly to the knee slightly serrate; tibiæ very slightly flattened, broader towards the tip; inner margin feebly sinuate, and finely serrate; second and third ventral segments broadly flattened at the middle, sixth deeply triangularly emarginate.

♀.—Hind legs normal; sixth ventral segment rounded at tip.

Mass., Mr. Frederick Blanchard. The ♂ is much less frequent than the ♀.

S. brunnipes.

A very similar species with pale brown legs occurs in Vancouver and California, and fortunately among my specimens there is one ♂ which differs entirely in sexual characters from that above described. The legs are not stouter nor toothed in the ♂, and the second and third ventral segments are not impressed. The fifth ventral is emarginate and broadly concave, with a tubercle at the middle of the concave surface. The sixth is deeply emarginate and the seventh broadly grooved.

Another very similar one, of which only two ♀'s have been examined, occurs in Michigan and Colorado. The legs are black, but the elytra are much more finely and densely punctulate and nearly opaque. Until ♂ characters are observed, this species may properly remain unnamed.

SUNIUS Stephens.

Cylindrical, convex, slender.....2.
Subdepressed, abdomen broader, antennæ thickened externally; 3.3 mm.; Cala.; Or.....1. **californicus** *Austin.*
2.—General color dark, elytra more coarsely punctured.....3.
General color pale.....5.
3.—Head less densely punctured beneath.....4.
Head more densely punctured beneath; 4—4.5 mm.; Atlantic region.
2. **prolixus** *Er.*

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4.—Elytra dark with broad apical yellow margin; 3.4 mm.; Middle and Southern States, (*linearis* Er.).....3. **binotatus** *Say.*

a.—Elytra dark with narrow sutural and apical margin reddish.

β.—Yellow-brown, head, elytral marginal spot, and sometimes the tip of abdomen dark; *binotatus* Say

5.—Elytra shorter than prothorax, head dark; 3.4 mm.; Mass.; Mich.
4. **brevipennis** *Austin.*

Elytra longer than prothorax, head pale; 3—4.2 mm.; Atlantic and Pacific regions.....5. **longiusculus** *Mann.*

S. monstrosus Lec., belongs to Stilicopsis.

I am unable to separate *S. similis* Austin, and *S. trisignatus* Boh., from *S. longiusculus.*

S. centralis Austin, is a pale form of race *β*, of species 3. *binotatus*, of which *S. linearis* Er., is the darkest form.

In all of these species the sixth ventral segment of the ♂ has a small triangular emargination at the middle.

OXYPORUS Grav.

At the time I published the synoptic table of the species of this genus,* I had not recognized any sexual characters.

Last year my attention was called by my friend and excellent observer, Mr. Frederick Blanchard of Lowell, Mass., to some remarkable differences he had noticed in the mandibles of several species, and to hairy patches seen on the fifth ventral segment of very well preserved ♂'s of *O. lateralis* and *occipitalis.*

In *O. lateralis* the left mandible of the ♂ has a tooth just behind the apex, which is wanting in *occipitalis;* and in the former the patch of soft silky hair extends two-thirds the length of the fifth ventral segment forward from the hind margin, while in the latter it is less developed.

The tooth of the left mandible of both sexes, which in most of the species supports in repose the inner edge of the right mandible, is smaller in these two species than in the others, in which, moreover, both Mr. Blanchard and myself have failed to discover any sexual differences, except those indicated by the larger head and less rounded sides of the prothorax of the males.

In *O. 5-maculatus* the tooth of the left mandible is nearer the base, and is reduced to a very small cusp on the inner edge, and in *O. lepidus* it is entirely wanting.

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* Trans. Am. Ent. Soc. 1877, 214.

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HYPOTELUS Er.

H. capito.—Slender, linear, depressed, piceous, or piceo-testaceous; head blackish, quadrate, longer than wide, sparsely and coarsely punctured, middle and hinder part smooth; behind the middle is one pair of large deep foveæ; mandibles half as long as the head; antennæ but little longer than the head, gradually thickened externally. Prothorax subquadrate, hind angles and base rounded, honey-yellow, finely not densely punctulate. Elytra sparsely finely punctulate without sutural stria; abdomen distinctly margined, dorsal segments not densely but distinctly punctured. Legs yellow, front tibiæ very distinctly spinose. Length 2—2.3 mm.

Columbus, Texas; E. A. Schwarz; under the bark of *Celtis texana*, in the galleries of *Scolytus fagi*. The elytra are a little longer than the prothorax, which is very obsoletely and imperfectly channeled. No sexual differences observed in the three specimens examined.

BRYAXIS Leach.

A.—Prothorax with deep lateral foveæ, connected by a strongly impressed line; elytra with a deep stria near the side; hind tibiæ with a small apical spur; ♂ with front tibiæ sinuate on inner side, and obtusely toothed above the middle.

Middle fovea of prothorax small.....2.

Middle fovea of prothorax as large as the lateral ones; 2 mm.; Mass.; Mich.; Ill.; (Europe).....1. **sanguinea** *Leach.*

2.—♂ antennæ with outer joints not compressed; front trochanters not spinose; ♀ antennæ slender; 1.8 mm.; Can.; Mass.; Mich.; Ill.

2. **conjuncta** *Lec.*

♂ antennæ with broad compressed club; front trochanters armed with a slender spine; ♀ antennæ shorter and stouter than in *conjuncta;* same size and distribution; *clavata* ‖ Brendel.....3. **Brendelii** *Horn.*

B.—Prothorax with three large foveæ not connected by a line; elytra without lateral stria; Brachygluta Thomson; ♂ with first dorsal segment very large, lobed or tuberculate behind.

First dorsal ♂ prolonged behind.....2.

First dorsal ♂ largely bilobed behind.....3.

First dorsal ♂ bituberculate above.....4.

First dorsal ♂ emarginate at tip, second with a flat circular impression, slightly convex at the middle; 1.3 mm.; Cala.....4. **foveata** *Lec.*

First dorsal ♂ slightly deflexed and foveate at tip, second with a large transverse emarginate excavation; 1.3 mm.; N. Y.; one specimen.

5. **perforata** *Brend.*

First dorsal flattened, slightly deflexed and foveate at tip; second with a transverse convex surface, which is biemarginate in front, and slightly foveate at the hind margin; antennæ more slender than in *Ulkei;* 1.5 mm.; Texas.....6. **Belfragei** n. sp.

2.—First dorsal ♂ not emarginate at tip; 1.5 mm.; Middle and Western States.

7. **dentata** *Say.*

First dorsal ♂ emarginate at tip, second very protuberant, emarginate behind; 2 mm.; D. C.; one specimen.....8. **Ulkei** *Brend.*

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3.—First dorsal segment ♂ deeply excavated: second also deeply and widely excavated; color nearly black, elytra dark red, palpi testaceous; 1.8 mm.; Western States.....9. **Illinoiensis** *Brend.*

First dorsal ♂ excavated, with a tubercle in middle of excavation; second deeply, widely excavated; third very protuberant, largely bilobed; color ferruginous; 1.8 mm.; Mass.; N. Y.; D. C.....10. **abdominalis** *Aubé.*

4.—First dorsal ♂ with tubercles near hind margin, and two deflexed apical processes, between which is a deep excavation; second not excavated; third very protuberant, concave each side, truncate and suddenly declivous behind, with a broad triangular impression; color ferruginous; 1.8 mm.; D. C.; one specimen.....11. **intermedia** *Brend.*

First dorsal ♂ with tubercles near the base; semicircularly excavated, and subacutely bilobed behind, and flattened near the sides; second very protuberant, bilobed, deeply excavated at the middle; color ferruginous; 1.8 mm.; Fla.....12. **floridana** *Brend.*

C.—Prothorax with three equal but smaller foveæ; body more elongate; first dorsal with two very short distant lines at base; color ferruginous; ♂ antennal club irregular, front trochanters armed with an acute spine; ventral segments 1—4 flattened at the middle.

♂ Last joint of antennæ ovate; 2 mm.; Mass.; D. C...13. **lunigera** *Lec.*

♂ Last joint of ant. reniform; 2 mm.; D. C.....14. **cavicornis** *Brend.*

D.—Prothorax with large lateral foveæ and a small medial one.

Head trifoveate.....2.

Head bifoveate, the frontal fovea being absent; first dorsal with two distant short lines.....13.

2.—First dorsal with two approximate diverging lines.....3.

First dorsal with two widely distant short lines.....7.

3.—Lines of first dorsal proceeding from a small rounded ciliated tubercle; no sexual differences in antennæ.....4.

Lines of first dorsal proceeding from a transverse tubercle.....6.

4.—Prothorax not punctured.....5.

Prothorax distinctly punctured, medial fovea conspicuous; red brown, antennæ and legs ferruginous; ♂ last ventral feebly impressed; 1.2 mm.; Mich.; one specimen.....15. **gemmifer** n. sp.

5.—Larger, medial fovea of prothorax conspicuous; color ferruginous; abdominal lines long; antennæ and legs paler; ♂ last two ventrals broadly concave with an elongate medial elevation; 1.5 mm.; Ill.; one specimen.....16. **radians** n. sp.

Smaller, medial fovea of prothorax conspicuous; piceous, antennæ and legs yellowish ferruginous; elytra more strongly punctured; abdominal lines short; ♂ last ventral broadly but not deeply concave; 1.2 mm.; Mass.....17. **divergens** n. sp.

Smaller, medial fovea of prothorax very small; uniform ferruginous; elytra less strongly punctured; ♂ last ventral feebly impressed; 1.3 mm.; Florida.....18. **atlantica** *Brend.*

6.—Ferruginous, or darker with red elytra; ♂ last dorsal broadly emarginate at tip; last ventral feebly impressed; 1—1.3 mm.; Atlantic region.
19. **rubicunda** *Aubé.*

Smaller, ferruginous; ♂ last dorsal as in *rubicunda;* 0.9 mm.; Mass.: D. C.; Ill.....20. **congener** *Brend.*

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Larger, ferruginous, tubercle of first dorsal segment triangular, the lines approximate and divergent; middle fovea of prothorax distinct; ♂ last ventral with a deep, sharply defined, but not large oval fovea; 1.8 mm.; Missouri; one specimen.....21. **trigona** n. sp.

7.—Antennæ ♂ ♀ alike.....8.

Antennæ ♂ with joints variously enlarged.....9.

8.—Head and prothorax densely punctured; color blackish, legs yellow; 1 mm.; Ill.; N. Y.....22. **scabra** *Brend.*

Head and prothorax punctulate, color ferruginous, or darker with red elytra; ♂ last ventral broadly concave; 1 mm.; Mass.; Ill.; La.; Fla.....23. **puncticollis** *Lec.*

9.—Dark brownish red, legs and sometimes elytra paler.....10.

Ferruginous, antennæ more slender.....12.

10.—Frontal fovea normal.....11.

Frontal fovea very large; ♂ with fourth antennal joint widely dilated, 5—8 small, closely united, broader than long, ninth and tenth nearly as wide as eleventh; 1.2 mm.; Cala., Los Angeles.....24. **sagax** n. sp.

11.—♂ with fifth antennal joint moderately dilated, sixth scarcely longer than seventh; 7—9 rounded; 1.2 mm.; Lake Superior...25. **propinqua** *Lec.*

♂ with fifth antennal joint dilated, sixth larger than the following, rounded; 7—9 large, transverse; hind tibiæ flattened; 1.2 mm.; Vanc.; B. Col.; Colo.....26. **albionica** *Motsch.*

12.—Frontal fovea normal; ♂ with fifth and sixth antennal joints somewhat stouter, elongate-oval; ninth and tenth nearly as wide as eleventh; hind tibiæ curved and flattened; last ventral slightly flattened; 1.5 mm.; Texas; Fla.....27. **complectens** n. sp.

Frontal fovea very small; the two other foveæ smaller than usual; ♂? 1.2 mm.; Arizona; one specimen.....28. **subtilis** *Lec.*

13.—Front with two small punctures; color piceous, elytra bright red, apical margin blackish, legs ferruginous; ♂ first and second antennal joints large, third and fourth very small, fifth larger rounded, sixth and seventh transverse, pointed inwardly, eighth smaller, ninth larger, tenth nearly as wide as eleventh; ventral segments flattened at the middle; 1.2 mm.; California; Los Angeles.....29. **deformata** n. sp.

Front transversely impressed between the antennæ; color dark ferruginous, legs paler; ♂ antennæ stout, joints 6—8 narrower than fourth and fifth; last ventral flattened and slightly concave; 1.2 mm.; Cala., San Jose.....30. **compar** *Lec.*

Front not impressed; prominent, subacute, perpendicular at apex, uniform rufous; ♂ third and fourth antennal joints small, fifth and sixth thick, longer than wide, 7—9 smaller and narrower, tenth wider, eleventh elongate-oval; 1.2 mm.; Texas; (Belfrage).....31. **tumida** n. sp.

E.—Head without foveæ; first dorsal with two distant short lines.

Prothorax with small lateral foveæ upon the declivous sides, middle fovea very small; elytra with distinct but abbreviated dorsal stria, uniform rufous; 1.1 mm.; Middle and Southern States; *minuta* Brendel. 32. **tomentosa** *Aubé.*

Prothorax without foveæ, elytra with obsolete dorsal stria; dark rufous; 1.5 mm.; Iowa; one specimen.....33. **inornata** *Brend.*

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EUTRICHITES n. g. (Pselaphidæ).

Head trifoveate, anterior fovea smaller, front retuse and declivous; antennæ 11-jointed, not approximate, though less widely separated than in *Bryaxis;* first and second joints stouter, cylindrical, 3—10 smaller, nearly equal, the tenth being a little broader, eleventh oval pointed, one-half longer than wide, and as long as the four preceding united; the outer half is pubescent with long hair. Eyes rounded, convex. Maxillary palpi nearly as in *Bryaxis*, second joint long, clavate, third nearly rounded, fourth much longer and wider, ovate pointed, with an apical seta. Prothorax with a transverse impression each side near the base, and a small medial fovea; the base behind the impressions is punctured, the rest of the surface is convex, smooth and sparsely pubescent. Elytra convex, wider behind, punctured and pubescent, basal impression faint, sutural stria distinct, discoidal one wanting. Abdomen with dorsal segments convex, finely margined, the first somewhat longer; third and fourth ventral segments short; the fifth broadly impressed in ♂. Legs without spines, hind tibiæ longer and more curved in ♂; tarsi long, with a single claw.

Differs from *Bryaxis* by the ninth and tenth joints of the antennæ not enlarged, by the antennæ less distant at base, the dorsal segments less broadly margined, more convex and less unequal. The front is less protuberant than in the genera with more approximate antennæ, and does not overhang the antennal foveæ.

Eu. Zimmermanni.—Rufous, shining, pubescent; head trifoveate, anterior fovea smaller and less distinct; prothorax campanulate, slightly transversely impressed and punctured at the base, with a small medial fovea. Elytra convex, punctured, with no dorsal but a distinct sutural stria. Abdomen without impressions on the first dorsal segment. Antennæ as long as the head and thorax, tenth joint scarcely wider than the ninth. Length .08 mm.

From District of Columbia to Texas. A specimen in Dr. Zimmermann's collection was labeled *Eu. dixianus*, but I have found no description among his MSS.

PSELAPTUS n. g. (Pselaphidæ).

Head broadly excavated in front, obtusely elevated each side above the antennal foveæ, which are distant; front convex but not retuse. Antennæ 11-jointed, first and second joints a little stouter and longer, cylindrical, 3—8 shorter, ninth and tenth a little broader and slightly longer, eleventh oval pointed, one-half longer than wide, and double the width of the tenth, outer part pubescent with long hairs. Eyes large, convex. Maxillary palpi as in *Bryaxis*, second joint long, clavate, third rounded, fourth elongate-oval, acute, with an apical seta.

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Prothorax very convex, campanulate, feebly transversely impressed near the base, without foveæ. Elytra convex, wider behind, without striæ or punctures. Abdomen with dorsal segments convex, finely margined, the first longer, with two short parallel striæ not very widely separated; intermediate ventral segments short.

Differs from *Bryaxis* by the sculpture of the head, and the entire absence of striæ on the elytra, even the sutural.

Ps. Belfragei.—Rufous, clothed with fine short sericeous pubescence. Head broadly impressed in front; prothorax without foveæ, elytra not punctured, without striæ; first dorsal segment with two short parallel lines. Length 1 mm.

Texas, two specimens, with the hind tibiæ long and slightly curved; the frontal impression is less deep at the middle than at the sides.

SCALENARTHRUS n. g. (Pselaphidæ).

This genus is also closely allied to *Bryaxis*, and differs chiefly by the dorsal abdominal segments being more convex, almost ventricose, without impressions, and with the side margin extremely narrow, though distinct; the first segment is as long as the others united. The antennæ are 11-jointed; the second joint is equal to the first; 3—7 smaller, eighth, ninth and tenth gradually wider and transverse, eleventh large, oval, pointed at each end, inserted obliquely upon the tenth, (♂) not so large, oval, pointed at tip, obtusely rounded at base in the ♀.

S. Hornii.—Red-brown, without distinct sculpture, finely pruinose with extremely small pubescence. Head with transverse frontal impression, and two small foveæ behind; eyes well developed. Prothorax rounded, without impressions, lateral foveæ small, obsolete, not visible except from the sides. Elytra convex, rounded on the sides, without foveæ or striæ, suture very finely margined. Length 0.7 mm.

Arizona, Dr. G. H. Horn.

EUTYPHLUS n. g. (Pselaphidæ).

Body elongate, linear, resembling *Euplectus*. Head with a wide excavation each side on the declivity, with only a single ocellus representing the eyes; vertex bifoveate, convex at the middle, front concave, arcuately impressed, declivous at tip. Antennæ not as long as the head and prothorax, rather stout, first and second joints thicker, 3—8 not longer than wide, ninth and tenth somewhat transverse, eleventh large, oval, annulated beyond the middle and obtusely pointed. Last joint of maxillary palpi ovate, pointed. Prothorax not wider than long, with a deep transverse impression near the base ending in large lateral foveæ, and crossed by an interrupted impressed dorsal groove.

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Elytra not very convex, sutural and dorsal striæ deep, base foveate. Abdomen with four exposed dorsal segments of about equal length and a smaller terminal one; widely margined at the sides, and without lines or foveæ; ventral segments six, the fifth widely emarginate behind. Hind coxæ approximate, slightly prominent, tibiæ without spurs, tarsi with first joint elongate, claw single.

E. similis.—Elongate, not convex, red-brown, shining, finely pubescent, sculptured as above described, antennæ and legs yellowish. Length 1.2 mm.

Washington, Mr. H. Ulke, to whom I am indebted for an excellent series of specimens; it is found under ground, about the roots of trees.

This insect has a deceptive resemblance to *Euplectus interruptus*, but besides the absence of eyes, it differs by the shorter and stouter antennæ, and the elongate well impressed dorsal stria of the elytra.

INO Lap.

I. reclusa.—Depressed, shining, testaceous, elytra slightly dusky near the tip; head large, obsoletely punctulate, with a faint trace of a longitudinal impressed line. Prothorax narrower than the head, but a little wider than long, strongly narrowed from the front angles to the base, which is very narrow and imperceptibly margined; sides sinuous with a subacute tooth about the middle; surface very obsoletely punctulate. Elytra narrow at base, gradually wider behind, rounded at tip, longer than head and prothorax. Abdomen with four exposed segments, slightly dusky at the sides. Length 2.3 mm.

Columbus, Texas; E. A. Schwarz; beaten from branches of trees, very rare. The head is widest at the eyes, which are small and rounded; the antennæ are half as long as the body. This genus is remarkable among *Cucujidæ* for having no appearance of lateral striæ on the prothorax.

HYPERASPIS Chevr.

Claws dilated at base, or appendiculate.....2.
Claws slender, not dilated at base, body elliptical, less convex than usual; abdomen finely sparsely punctulate; Oxynychus Lec.....20.
2.—Elytra with red or yellow lateral margin; with or without discoidal spots; form hemispherical.....3.
Elytra without colored lateral stripe.....6.
3.—Elytra with broad red lateral stripe extending nearly to the apex; head and sides of prothorax ♂ pale.....4.
Elytra with lateral stripe extending to or a little beyond the middle.....5.
4.—Metasternum shining, punctured, abdomen opake, smooth; elytra with large discoidal blotch confluent behind with the colored lateral stripe; 3 mm.; Illinois; (Bolter), ♀.....1. **Bolteri** n. sp.
Metasternum coarsely densely, and abdomen more finely punctured; inner margin of lateral stripe feebly undulated; ♂ ♀; 2—2.8 mm.; L. S.; Ks.; Tex.; Col.; Cala.; Vanc.....2. **fimbriolata.**

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Metasternum coarsely and abdomen finely punctured; posterior part of lateral stripe almost separated as a spot; (probably var. of *fimbriolata*); 2.5 mm.; L. Superior, ♀.....3. **dissoluta.**

5.—Lateral stripe of equal width; elytra with a discoidal and a subapical spot; metasternum coarsely and abdomen finely punctured; ♂ head, sides and apical margin of prothorax yellow; 2.5—2.8 mm.; Col.; Cala.; Nev.; Vanc.; ♂ ♀.....4. **lateralis.**

Varies *a*. without discoidal spot; ♀.

" *β*. without discoidal and apical spots; ♂.

Lateral stripe suddenly dilated inwards; beneath punctured as usual; ♂ head and narrow side margin of prothorax yellow; 2.3 mm.; Cala.; ♂ ♀.....5. **tæniata.**

Lateral stripe gradually but largely dilated inwards, sides of prothorax red; beneath punctured as usual, abdomen and legs brownish-red; ♂ head dark red; 2.5 mm.; Texas; (Boll.); ♂ ♀.....6. **cruenta** n. sp.

6.—With three marginal spots representing an interrupted lateral stripe; abdomen punctulate, nearly smooth at the middle.....7.

Without marginal spots.....9.

7.—With basal spots; discoidal spots behind the middle.....8.

Without basal spots; discoidal spot in front of the middle, side margin of prothorax yellow; ♂ head, sides and apical margin of prothorax yellow; 2—2.6 mm.; Pa.; Ga.; Can.; Ks.; ♂ ♀.....7. **elegans.**

Varies *a*. marginal spots connected.

" *β*. discoidal spot confluent with the middle lateral one.

8.—Oval, discoidal spot oval; 2.7 mm.; L. Superior; ♀.....8. **disconotata.**

Rounded, discoidal spot rounded; more coarsely punctured above; ♂ head and narrow side margin of prothorax yellow; 2 mm.; Mass.; ♂. 9. **discreta** n. sp.

9.—Prothorax black (♀); with sides and front margin pale (♂); abdomen less densely punctured.....10.

Prothorax with lateral spot or margin pale (♂ ♀); head pale (♂).....12.

10.—Form hemispherical.....11.

Oval convex; elytral spot extending to the side margin about the middle; tibiæ testaceous; 3.2 mm.; Texas; ♀.....10. **Lewisii.**

11.—Elytral spot red, very large, placed before the middle, extending to the side margin, anterior outline oblique; a smaller spot near the tip; ♂ with a frontal spot and side margins of prothorax yellow; 3—3.2 mm.; Florida; (Schwarz, Bolter); ♂ ♀.....11. **tædata** n. sp.

Elytral spot rounded, situated about the middle, a little nearer the sides than the suture; ♂ head, sides and apical margin of prothorax yellow; 2.2—4 mm.; Pa.; Ill.; Tex.; ♂ ♀.....12. **signata.**

a. with a small rounded spot near the tip; *signata* Oliv.

Elytral spot behind the middle, and near the side; ♂ head and side of prothorax yellow; 2.4—2.8 mm.; Cala.; ♂ ♀.....13. **osculans** n. sp.

12.—Form hemispherical, elytra spotted.....13.

Form hemispherical, elytra vittate; abdomen finely and sparsely punctulate.....19.

Form oval; abdomen finely and sparsely punctulate.....16.

13.—Legs black; abdomen more strongly punctured.....14.

Legs yellow; abdomen less strongly punctured.....15.

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14.—Elytra each with a round spot at the middle, and two small ones one-fifth from the tip, sides of prothorax yellow; ♂ head, sides of prothorax widely, and narrow apical margin yellow; 2—3 mm.; Pa.; Ill.; Ks.; Fla.....14. **proba.**

a.—Middle spot prolonged backwards, confluent with the inner posterior spot; Kansas, (Snow); Florida, (Bolter); ♀.

β.—Posterior spots wanting; ♀.

Elytra each with two yellow spots behind the middle, sometimes confluent forming a transverse blotch which extends to the margin; ♂ head and very wide side margin of prothorax yellow; 3.5 mm.; Ga.; Tex.; ♂.
15. **gemina** n. sp.

Elytra each with one round red spot near the tip, prothorax with a large orange lateral spot; ♂ head orange; 2.8—3 mm.; Maine; Florida; Texas; ♂ ♀.....16. **bigeminata**

15.—Elytra each with a discoidal spot about the middle, a lateral one opposite, and another near the tip; labrum and large lateral spot of prothorax yellow; 3.5 mm.; Kansas; ♀.....17. **pratensis.**

Elytra with a discoidal and lateral spot, and a narrow side margin extending from the base to beyond the middle; ♂ head and sides of prothorax widely yellow; 2.2—2.8 mm.; Maine; Col.; Ill; ♂.....18. **lugubris.**

16.—Oval convex.....17.

Elliptical, less convex; legs yellow; sides of prothorax yellow; ♂ ♀...18.

17.—Elytra each with an oval spot not extending in front of the middle; and a subapical rounded spot; labrum and sides of prothorax yellow or red; 2—2.5 mm.; Cala.; ♀.....19. **4-oculata.**

Elytra each with a large yellow posterior blotch near the tip; sides of prothorax widely yellow; ♂ head yellow; 2.3—2.8 mm.; Cala., (Hardy, Bolter); ♂ ♀.....20. **postica** n. sp.

18.—Beneath feebly punctured, elytra with a continuous yellow margin, slightly broader behind, and an oval discoidal spot at the middle; prothorax with narrow side margin yellow; ♂ head and apical margin of prothorax also yellow; 1.6—2 mm.; Florida; (Schwarz); ♂ ♀.....21. **paludicola.**

Beneath strongly punctured, elytra with two yellow marginal spots connected by a narrow line, a discoidal spot in front of the middle, and a large one near the tip; prothorax with narrow side margin yellow; ♂ head yellow; 2 mm.; Texas; ♂ ♀.....22. **punctata** n. sp.

19.—Marginal vitta dilated near the tip into a spot and united with the dorsal vitta; sides of prothorax widely yellow; ♂ head also yellow; 2—2.5 mm.; Cala.; ♂ ♀.....23. **annexa.**

Marginal vitta not dilated at tip; side margin of prothorax narrowly yellow; ♂ head and prothorax reddish yellow, the latter dusky at base; 2 mm.; Ill.; Ks.; Tex.; ♂ ♀.....24. **4-vittata.**

a.—Discoidal vitta wanting.

20.—Elytra with an abbreviated posterior vitta sometimes reduced to a small elongate spot; also with three marginal spots, usually obsolete; prothorax with narrow side margin yellow; 2.5 mm.; L. Sup.; ♀.
25. **mœrens.**

Elytra with a small rounded spot near the tip, and some faint traces of marginal spots; prothorax with narrow yellow side margin; ♂ front yellow; 2 mm.; Col., (Hardy); ♂ ♀.....26. **tristis** n. sp.

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The synonymy and bibliography of most of these species will be found in the Revision of the Coccinellidæ of the U. S. by Mr. G. R. Crotch, Trans. Am. Ent. Soc. 1873, 379. But one species has been described since the publication of his memoir.

21. **H. paludicola** Schwarz, Proc. Am. Phil. Soc. 1878, 362, Florida.

H. inedita Muls., Trim. 684; Crotch, 380, remains unknown to me.

2. **H. fimbriolata** Mels., Pr. Ac. Nat. Sc. Phila. iii, 180; *rufomarginata* Muls., Trim. 661; *cincta* Lec., Pr. Ac. Nat. Sc. Phila. 1858, 89.

4. **H. lateralis** Muls., Trim. 65; *Hornii* Crotch, Tr. Am. Ent. Soc. 1873, 381.

7. **H. undulata** (Say), Journ. Ac. Nat. Sc. Phila. iv, 92; *elegans* Muls., Trim. 658; *maculifera* Mels. Pr. Ac. Nat. Sc. Phila. iii, 179.

12. **H. signata** (Oliv.), vi, 98, pl. 7, 107; *binotata* Say, Journ. Ac. Nat. Sc. Phila. v, 302; *normata* (Say), ibid. 302; ♂ *leucopsis* Mels., Pr. Ac. Nat. Sc. Phila. iii, 179.

16. **H. bigeminata** (Randall), Bost. Journ. Nat. Hist. ii, 32; *Guexi* Muls., Trim. 687.

18. **H. lugubris** (Randall), Bost. Journ. Nat. Hist. ii, 52; *jucunda* ‖ Lec., Pr. Ac. Nat. Sc. Phila. vi, 134; *Lecontei* Crotch, Revis. 233; var. *venustula* Muls., Trim. 671.

25. **H. mœrens** Lec., Agassiz L. Sup. 238; *consimilis* Lec., Pr. Ac. Nat. Sc. Phila. vi, 134.

PEPLOGLYPTUS n. g. (Histeridæ).

Body oblong, costate, elytra a little wider than the prothorax. Head broadly concave, front acute anteriorly; antennæ very strongly geniculate, scape nearly as long as the funicle, which is slender, club oval, pointed, annulated. Prothorax less than one-half wider than long, sides oblique, slightly sinuate in front of the middle, apex emarginate, base oblique each side, lateral edge acute, disc longitudinally deeply concave near the margin, but more deeply so near the lateral sinuosity; this concavity is limited on the inner side by a sinuous impressed line. Scutel very small. Elytra oblong, with the suture, three discoidal ridges and the margin acutely but feebly elevated; epipleuræ flat. Pygidium perpendicular not sculptured. Beneath nearly smooth; prosternum wide with the anterior lobe large, front coxæ widely separated, hind margin broadly truncate and feebly emarginate, antennal cavities small, transverse, situated under the front angles near the anterior margin ofthe flanks. Tibiæ long, slender, front pair gradually slightly dilated as far as the middle, then obtusely angulated on the outer side and nearly parallel to the apex; middle and hind pair slender, very feebly dilated, tarsi more than half as long as the tibiæ, claws equal as usual.

P. Belfragei.—Oblong, dark brown, without lustre, and without sculpture, except as above described. Length 2 mm.

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Clifton, Texas; one specimen, found by Mr. G. W. Belfrage, under a stone, in a wet sandy place. This very pretty little insect is closely allied to *Glymma* of Europe, but differs by the antennal cavities on the flanks of the prothorax, under and not upon the front angles, the smaller number and less development of the costæ; by the front tibiæ being distinctly angulated on the outer side, and especially by the absence of the peculiar foveate sculpture of the under surface as represented by Marseul, Ann. Ent. Fr. 1856, pl. 11, xxxix.

HISTER Linn.

H. (**Psiloscelis**) **perpunctatus.**—Oblong, opake black, finely and densely punctured, punctures at the sides of the prothorax and on the elytra somewhat larger; elytral striæ very fine, three inner ones scarcely apparent. Beneath strongly punctured at the sides, smooth, and somewhat shining at the middle. Prosternum rounded behind and not at all margined. Length 6.5 mm.

Tyngsborough, Mass.; Mr. F. Blanchard; found with a brown ant 4.5 mm. long. Smaller and more convex than *H. planipes*, and easily known by the finer and denser punctuation, the obliterated inner striæ, the under surface nearly smooth except at the sides, and the prosternum not at all margined behind. *Hetærius Blanchardi* occurs with the same ant.

H. tornatus.—Cylindrical, stout. black, very shining; head flat, finely punctulate, frontal stria hemihexagonal; prothorax very slightly punctulate, marginal stria deeper near the front angles, ambient in front; outer marginal very near the lateral bead, a little abbreviated behind. Elytra with extremely faint and fine striæ, which seem to be entire in type, though barely visible, the outer ones are a little less obliterated; humeral stria oblique, distinct; epipleuræ bistriate. Propygidium and pygidium convex, sparsely finely punctured. Front tibiæ very broad obtusely 3-dentate, tarsal groove distinct, straight; other tibiæ not toothed, with two rows of spines as usual. Beneath very slightly punctured. Prosternum without striæ, anterior lobe very prominent; mesosternum truncate in front, marginal line entire. Length 4.4 mm.

Indian River, Florida; one specimen, found by Mr. A. Bolter, to whose liberality I am greatly indebted for it. Stouter than the cylindrical forms of *Platysoma*, which it resembles in appearance, though belonging to the typical division of the genus. It is, in fact, more allied to the *americanus* group than to any other.

ABRÆUS Leach.

A. Bolteri.—Convex oval, brown, moderately shining; head scarcely perceptibly punctulate. Prothorax finely punctulate, without basal line, base obtusely angulate at the middle. Scutellum invisible. Elytra moderately punctured, punctures finer and somewhat rugose behind; oblique rudiments of striæ near the base feeble; epipleuræ broad punctured, with a distinct lateral stria abbreviated in front. Pygidium smooth, not inflexed. Beneath somewhat coarsely but not strongly punctured especially towards the sides: prosternum

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nearly square, not lobed in front; base slightly emarginate in the arc of a circle; mesosternum without stria. Front tibiæ broadly triangular, with the apical external angle about the middle of the length; middle and hind tibiæ slender, slightly curved; hind tarsi distinctly 5-jointed. Length 1.4 mm.

San Bernardino, Cala. It gives me much pleasure to dedicate this very interesting addition to our fauna to Mr. A. Bolter, by whom it was collected. The size is unusually large for this group, being a little larger than *Acritus maritimus*. The front tibiæ are nearly like those of the East Indian *A. paria* represented by Marseul, Ann. Ent. Soc. France, 1856, pl. 14, xlii, 3 e.

HOPLIA Ill.

The males in this genus differ from the females by the larger size and greater thickness of the hind tibiæ and tarsi. Frequently also, great sexual differences are seen in the clothing of the body, which is more scaly in the female, and more hair-like in the male. In some species besides the differences in clothing, the middle tibiæ of the female have a distinct terminal spur.

Claw of hind tarsi not cleft.....2.
Claw of hind tarsi cleft near the tip.....8.
2.—Prothorax with front angles acute, sides oblique not much rounded.....3.
Prothorax with front angles less acute and sides much rounded.....4.
3.—Elytra brown, scales of prothorax small, not dense, of elytra hair-like; hairs of prothorax long; middle tibiæ ♀ with a terminal spur.
1. **Sackenii** n. sp.
Black, densely clothed with rounded pale brown, yellow, or silvery scales, except on the head; prothorax and elytra frequently spotted; hairs of prothorax and elytra very short.....6. **dispar** n. sp.
4.—Prothorax clothed with long hair.....5.
Prothorax clothed thinly with short hair.....6.
5.—Body densely clothed with small scales; elytra and pygidium with long hair; 7.2—9.5 mm.; Cala.....2. **callipyge** *Lec.*
Body not squamose, but sparsely pilose, hairs of elytra and pygidium rather short.....3. **hirta** n. sp.
Body densely clothed with small scales; elytra and pygidium with short hair; 5.5—7 mm.; Cala.; Oregon.....4. **pubicollis** *Lec.*
6.—Epistoma flat, margined and truncate in front.....7.
Epistoma concave, subemarginate and strongly margined; body clothed with small elongate scales; prothorax with sides oblique, rounded.
5. **laticollis** *Lec.*
7.—Sexes dissimilar; prothorax wide, narrowed in front, sides subangulated and rounded; epistoma narrowly margined; 6.5—9.2 mm.; Atlantic region.....7. **trifasciata** *Say.*
♂.—Black, hairy with cinereous pubescence, sprinkled beneath with small silvery scales; *tristis* Mels.
♀.—Brown, very densely clothed with pale brown, and yellowish silvery scales; middle tibiæ with a large terminal spur; *trifasciata* Say.

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Sexes similar; epistoma more strongly margined in front; body thinly clothed with lanceolate pale scales, and sparsely pilose; prothorax with sides oblique, slightly rounded; 6 mm.; N. Y.; Pa.
8. **trivialis** *Harold.*

Sexes similar; epistoma narrowly margined, and slightly rounded in front; body clothed with oval ochreous scales; prothorax wider in front of the base, sides strongly angulated; 6—6.8 mm.; Atlantic region.
9. **mucorea** *Germ.*

8.—Sides of prothorax broadly rounded.....9.

Sides of prothorax strongly angulated; front and middle tarsi with two claws; black, pygidium and under surface densely clothed with rounded silvery scales; sides of prothorax, suture and margins of elytra and two oblique branches with silvery scales; 7.5—8.5 mm.; Western States .....10. **limbata** *Lec.*

9.—Front and middle tarsi with two claws; brown, clothed with very small scales, oval on the prothorax, narrow and hair-like on the elytra, larger and metallic beneath; 6.5—8 mm.; Atlantic region.
11. **modesta** *Hald.*

Front and middle tarsi with but one claw; scales thinly placed, oval; 7.5 mm.; Mass.....12. **equina** n. sp.

1. **H. Sackenii.**—Black or brown, elytra brown, shining, punctured, thinly clothed with moderately long acute, hair-like scales. Head densely punctured, thinly clothed with small scales, epistome with parallel sides, truncate in front, with the angles rounded. Prothorax not longer than wide, sides oblique in front of the middle, then rounded, and nearly parallel to the base, apex broadly emarginate, base oblique each side, broadly rounded at the middle, front angles acute, hind angles nearly rectangular; surface densely and finely rugosely punctured, pubescent with long yellowish hairs, and thinly sprinkled with narrow white scales, which are nearly three times longer than wide. Pygidium densely but feebly punctured, clothed with similar scales having a silvery reflection. Beneath clothed with silvery scales, metasternum with long yellowish hairs. Outer claw of front and middle tarsi half as long as the inner one; front tibiæ tridentate, upper tooth feeble. Length 9 mm.

♀.—Middle tibiæ with a distinct spur.

California, Summit Lake, Sierra Nevada, Baron R. ÖstenSacken; San Diego.

6. **H. dispar.**—Black, variably clothed with small rounded scales. Head opake, densely rugosely punctured, not squamose, thinly pubescent, epistome rounded nearly in the arc of a circle. Prothorax a little wider than long, narrowed from the base, but more strongly in front of the middle, apex strongly emarginate, base oblique each side, feebly rounded at the middle; front angles acute, hind angles obtuse, not rounded; surface thinly pubescent with short erect black hairs. Elytra also with a few short black hairs. Pygidium and under surface densely clothed with rounded silvery scales; metasternum densely pubescent with white hair. Legs and claws as in the preceding. Length 6.3—8 mm.

♂.—Prothorax, scutel and elytra very densely clothed with fulvous or greenish scales; varies with the disc of the prothorax more or less naked,

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and the elytra with three bands of spots more or less developed, and sometimes confluent.

♀.—Varies like the ♂.

California (Mountains) and Nevada. Very nearly related to *H. aureola* Pallas, of Northern Asia, and differs chiefly by the head being not covered with scales. I have adopted the MS. name of Mr. Crotch, under which it has been largely distributed.

3. **H. hirta.**—Black, without scales; head, prothorax and metasternum clothed with very long fine whitish hairs, the rest of the body clothed with shorter, less fine pubescence. Head densely punctured, epistome short, strongly margined, sides nearly parallel, front truncate and feebly emarginate, angles much rounded. Prothorax scarcely wider than long, slightly narrowed from the base to the middle, then more strongly narrowed to the apex which is broadly emarginate; front angles acute, hind angles slightly rounded, base oblique each side; surface rather densely punctured. Elytra punctured, thinly pubescent as usual. Pygidium densely but not deeply punctured, pruinose with pale hairs. Beneath densely punctured. Legs as in the preceding species, but the outer claw of front and middle tarsi is a little shorter. Length 7.5 mm.

Nevada; one ♂ kindly given me by Dr. Horn.

12. **H. equina.**—Elongate, brown, not densely clothed with small oval ochreous scales, permitting the ground color to be quite apparent. Head densely punctured, moderately pubescent, epistome with oblique rounded sides, front broadly truncate, strongly margined, angles much rounded. Prothorax thinly pubescent with very short hairs; sides subsinuate behind, oblique and strongly narrowed in front of the middle; apex strongly emarginate, front angles acute, base oblique each side, angles rectangular, slightly rounded. Elytra with shallow punctures as usual. Beneath thinly clothed with scales as above, scarcely pubescent, outer claw of front and middle tibiæ entirely wanting. Length 7 mm.

Tyngsborough, Mass. I am greatly indebted to Mr. Frederick Blanchard for a pair of this species, of which he found but three individuals. It is a most interesting addition to our fauna, and is especially remarkable for the strong resemblance which it bears to *H. modesta*, from which it differs not only by the absence of the smaller tarsal claw, but by the uniform shape of the scales, the less pubescent prothorax and the slightly sinuate sides; this last character is more obvious in the ♀ than in the ♂.

The following synonymy is proposed, after a careful revision of the materials in the collections of Dr. Horn and myself.

4. **H. pubicollis** Lec., Jr. Ac. Nat. Sc. 1856, 285; *convexula* Lec., ibid. 285; *oregona* Lec., ibid. 284; *irrorata* ‖ Lec., Pac. R. R. Expl. & Surveys, 40; *mutata* Harold, Col. Hefte, v.

7. **H. trifasciata** Say; ♀ *primaria* Burm.; ♂ *tristis* Mels., Pr. Ac. Nat. Sc. Phila. ii, 141; Lec., ibid. 1856, 71; ♀ *helvola* Mels., ibid. ii, 142.

8. **H. trivialis** Harold, Col. Hefte, v; *debilis* ‖ Lec. loc. cit. 285.

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9. **H. mucorea** Burm., Handb. iv, i, 193; Lec., loc. cit. 287; *Melolontha mucorea* Germ., Ins. nov. 129; *H. monticola* Mels., Pr. Ac. ii, 141; Lec., loc. cit. 287.

11. **H. modesta** Hald., Pr. Ac. Nat. Sc. Phila. i, 304; Lec. loc. cit. 285; *singularis* Burm., Handb. iv, i, 192; ii, 486.

CHÆTOCŒLUS n. g. (Malachidæ).

Front tarsi ♂ 5-jointed, first and second joints a little thicker. Body without wings, ♂ elongate, elytra three-fourths as long as the abdomen, with parallel sides, suture entire, tips rounded; ♀ stouter, elytra very small, flat, divergent, scarcely longer than the metathorax; abdomen convex, not margined, pilose with long stiff black bristles, especially at the sides (as in *Tachyporus*), much larger in ♀ than in ♂. Head short, eyes small, rounded, last joint of maxillary palpi elongate-oval, nearly pointed; epistoma corneous. Antennæ inserted just in front of the eyes, similar in both sexes, 11-jointed, rather stout, subserrate, a little longer than the head and prothorax; the latter transverse and oval, truncate in front, rounded on the sides and at the base.

A singular genus having the elytra of the ♀ still shorter and more incomplete than in *Endeodes*, from which it differs in nearly all the generic characters above enumerated.

C. setosus.—Piceous, shining, not pubescent, but thinly clothed with erect bristles, which at the sides of the prothorax and abdomen are very long; head with two faint frontal impressions; prothorax one-third wider than long, moderately convex transversely, base finely margined; scutel slightly concave; elytra dark testaceous. Length 2 mm.

♂.—Eyes moderate, elytra elongate, parallel, dusky at tip, feebly and sparsely punctured; three dorsal segments exposed.

♀.—Eyes smaller, elytra very short, abdomen thick, gradually narrowed behind the middle; seven dorsal segments exposed.

Columbus, Texas; E. A. Schwarz; only a few specimens were found in the densest recesses of the forest of the river bottoms, on grape vines.

CLERONOMUS Klug.

C. ornaticollis.—Deep black, pubescent with short erect hair. Head nearly smooth, mouth and front testaceous; between the eyes there are two small converging deep impressions. Prothorax wider than long, narrowed behind, rounded on the sides, deeply transversely constricted near the apex, strongly constricted at the base; sparsely punctulate, shining yellow, with a large quadrate dorsal black spot, extending from the base to the apex, which is narrowly margined with testaceous; included in this large black spot is a narrow yellow spot occupying about three-fifths of the length. Elytra very densely rugosely punctured, opake. Antennæ as long as the head and prothorax, entirely black; second joint a little shorter than the third; 3—10 equal in length, the outer ones slightly broader and triangular; eleventh a little larger, oval, oblique and pointed at tip; under side of head and palpi testaceous, last joint dark. Legs and coxæ entirely black; prosternum and flanks of prothorax yellow. Length 6 mm.

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Cincinnati, Ohio; one specimen, kindly given me by Mr. Harold B. Wilson. The outer joints of the antennæ are less obviously wider than in the species figured by Spinola.

DICENTRUS n. g. (Cerambycidæ).

This new genus belongs to the tribe *Asemini*, as defined by me;* that is to say, the base of the antennæ is not enveloped by the eyes, and the ligula is corneous, with the bases of the palpi not retractile. It belongs to the group *Opsimi*, having the base of the prothorax emarginate at the middle, and the emargination filled by a depressed thin plate; this emargination is however, less obvious than in *Opsimus*, so that the thin plate becomes merely a thin basal margin.

Other distinctive characters are: Head short, front nearly perpendicular, eyes moderately granulated, divided as in *Tetropium;* palpi very unequal, maxillary moderately long, last joint elongate triangular, with distal margin rounded. Antennæ ♂ a little longer, ♀ a little shorter than the body; slender, first joint stouter, as long as the two following; second one-half as long as the third. Prothorax a little wider than long, truncate before and behind, sides rounded, armed with a small acute lateral spine at the middle, and another near the base equally acute. Elytra not convex, wider than prothorax, truncate at base, parallel on the sides, separately rounded at tip. Legs moderate, thigh not clavate, hind tarsi with first joint as long as the two following united. Front coxæ contiguous, cavities rounded, with a narrow external fissure; middle and hind coxæ separated. Surface opake, finely densely punctured, finely pubescent, without long hairs, except a few on the antennæ.

D. Bluthneri.—Piceous, antennæ and legs brown; elytra with a large spot extending from the sides almost to the suture, and from the first sixth to the middle reddish brown; a large apical brown spot occupies the posterior fourth of the elytra. Length 3—5.5 mm.

Sierra Nevada; San Joaquim Co., Cala.; Mr. M. S. Blüthner, to whom I dedicate it with much pleasure. Dr. Horn has specimens found in Nevada by Mr. H. K. Morrison, and I one from Lake Tahoe, (elev. 6465′).

MONACHUS Chevr.

The species of this genus are broadly oval and convex; the claws are appendiculate; the scutellum elongate, not elevated behind, and acutely triangular; the eyes strongly emarginate; the antennæ rather long with the last six joints (6—11) broader. The prosternum is

* Class. Col. N. Am. 292.

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flat, broader than long, slightly rounded behind, without distinct angles. The fifth ventral segment of the ♀ is impressed with a large circular rather deep fovea.

Head and prothorax smooth, or nearly smooth; outer joints of antennæ not wider than long; elytra black or blue.....2.
Head and prothorax distinctly punctured; outer joints of antennæ transverse; prothorax red with two discoidal spots; elytra with rows of punctures strong, blue with a red transverse band; 2.7 mm.; Ariz...5. **Guerini** Perb.
2.—Oval, indigo-blue, base of antennæ testaceous; prothorax opake, smooth; elytral rows of punctures feeble; ♂ ♀; 2.5—3 mm.; Atlantic region. 1. **ater** Hald.
Ovate, steel-blue, base of antennæ testaceous; prothorax with punctures near the base; elytral rows of punctures strong; ♂ ♀; 2.5—3 mm.; Middle and Southern States.....2. **saponatus** Fabr.
Broadly ovate, black, head, prothorax, antennæ and legs rufo-testaceous; prothorax opake, smooth; elytra blue, rows of punctures strong; ♂; 2 mm.; S. C.; Fla .....3. **thoracica** Crotch.
Of same form and sculpture as *thoracica*, black, elytra blue; prothorax slightly punctured at base; antennæ and legs more or less red; 1.7—2 mm.; Ga.; Fla.....4. **auritus** Hald.
Varies *a*. Head and sides of prothorax reddish yellow; ♂ *auritus* Hald.
" *β*. Legs and antennæ in great part black; ♂ ♀; *affinis* Hald.

DIACHUS Lec. n. g.

This genus is established upon small species heretofore placed in *Cryptocephalus*. They differ by the claws being broadly appendiculate, the antennæ not more than half the length of the body, with the joints 6—11 broader; the prosternum is quadrate and flat as in *Triachus*, but in *D. chlorizans* is broadly concave behind, with slightly prominent angles. The eyes are feebly emarginate. The striæ are composed of fine punctures, and sometimes obliterated behind; the outer ones are occasionally deeply impressed, and in that case extend around the apical margin. The scutellum is obtusely triangular, except in *D. chlorizans*, where it is acute. The impression of the fifth ventral segment of the ♀ is elliptical and shallow, except in that species, which with more abundant material for study might perhaps indicate a distinct genus. The form is cylindrical oval, and the color tinged with metallic gloss, brassy, steel-blue, or green.

Scutellum acutely triangular; body yellow, elytra metallic green; fifth ventral segment of ♀ with a large deep fovea; 2 mm.; Va.; Mo. 8. **chlorizans** Suffr.
Scutellum obtusely triangular; body usually dark metallic; fifth ventral segment of ♀ with an elliptical shallow fovea.....2.
2.—Elytral striæ obliterated behind the middle.....3.
Outer striæ of elytra impressed, ambient at tip.....4.

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3.—Bronzed, scutellum flat; prothorax not polished, sides, antennæ and legs testaceous; *chalconatus* Mann.; *æneolus* Lec.; 1.4—2 mm.; Atlantic and Pacific regions.....1. **auratus** Fabr.

Varies *a*. Blue, with sides of prothorax and antennæ testaceous, (Suffr.).

Indigo, or greenish blue; scutellum slightly elevated behind; antennæ and legs piceous, the former testaceous at base; 2 mm.; Cala...2. **erasus** n. sp.

4.—Scutellum flat; scutellar lobe of prothorax bidentate.....5.

Scutellum elevated behind.....6.

5.—Black, head, prothorax, antennæ and legs dull reddish-yellow or brown, elytra bluish with bronzed lustre; 1.5 mm.; Ga.....3. **levis** Hald.

Testaceous, with a slight bronzed lustre; 1.5 mm.; Fla...4. **squalens** Suffr.

6.—Prothorax smooth.....7.

Prothorax distinctly punctulate; body elongate-cylindrical; color olive-brassy, antennæ and legs dull ferruginous; 2.7 mm.; Garland, Colo.

5. **æruginosus** n. sp.

7.—Dark bluish-green, antennæ and legs piceo-testaceous; 2—2.7 mm.; L. S.; Ill.; Ga.....6. **catarius** Suffr.

Blue, antennæ and legs yellow; 2 mm.; Ks.....7. **pallidicornis** Suffr.

TRIACHUS Lec. n. g.

This genus contains *Cryptocephali* of very small size (1—1.2 mm. long), in which the claws are broadly appendiculate, the antennæ of moderate length, about half as long as the body, with the last five joints broader. The eyes are very feebly emarginate. The prosternum is flat, quadrate, not wider than long, margined at the sides, truncate behind, with the angles well defined, but not prolonged. The striæ consist of small punctures, regularly arranged, and the outer one is deeply impressed, but does not extend around the apex except as a row of punctures; the marginal stria is also deep. The impression of the fifth ventral segment of the ♀ is elliptical and not deep. The color varies from piceous to testaceous, and the body is oval and convex.

Prothorax smooth, feebly punctured at the sides.....2.

Prothorax sparsely finely punctured, more deeply at the sides.....3.

2.—Piceous, legs paler, inner elytral striæ almost obliterated; Va.; Fla.

1. **atomus** Suffr.

Testaceous yellow, elytral striæ equally distinct; Fla.....2. **cerinus** n. sp.

3.—Prothorax not margined at base; Ill.; Ks.....3. **vacuus** n. sp.

Prothorax with a row of punctures at base, which is finely but distinctly margined; oval, convex, testaceous, elytra clouded with brown; Texas.

4. **postremus** n. sp.

CRYPTOCEPHALUS Geoffroy.

The species of this genus are very numerous, and in some of the groups are rather indefinite in character, so that it is quite possible more careful revision with increased collections may still farther reduce the number of species below the limits I am now warranted

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in adopting. After separating as distinct genera the very small species, which seem by the appendiculate claws to be allied to *Monachus*, the remaining species of our fauna may be divided into two sets, the first of which is distinguished by the anterior margin of the inflexed flanks of the prothorax being toothed or sinuate, and by several singular male sexual characters specified below. The other set, or typical *Cryptocephali* may be divided according as the anterior prosternal lobe is prominent and carinate, or truncate and flat.

§ 1. Bassareus Hald.

The front prosternal lobe is feeble, provided with a short apical process, but not carinate; the anterior margin of the prothoracic flanks are toothed or sinuate beneath the antennæ. In the ♂ the prosternum is armed at the middle with a large erect compressed process; the first ventral segment at the middle forms a large flat plate, the hind angles of which rise into acute processes or spines; the fifth ventral is broadly concave, with a crest of curved erect hairs each side of the concavity; the first joint of the front tarsi is sometimes dilated, and is as long as the two following united. In the ♀ all these characters are absent, and the fovea of the fifth ventral is large, deep and circular.

The species may be tabulated as follows:

Elytra with numerous yellow spots.....2.
Elytra with four scarlet spots; (prothorax obtusely toothed beneath).....3.
Elytra entirely yellow.....4.
Elytra vittate with black and yellow.....5.

2.—Edge of prothoracic flanks acutely toothed under the antennæ; ♂ ♀; *brunnipes* Oliv.; *clathratus* Mels.; 3.8—5 mm.; Middle and Southern States.....1. **congestus** Fabr.

Edge of prothoracic flanks* only feebly sinuate under the antennæ; spots of elytra normal; ♂ ♀; *guttatus* Hald.; 3.7—5 mm.; Pa.; Ga.; Ill. 2. **formosus** Mels.

a.—Elytra yellow spots confluent into bands; *sulphuripennis* Mels.

β.—Elytra yellow, with three interrupted brown stripes.

3.—Prothorax opake, sparsely punctured; elytra with anterior band extending nearly to the suture, and apical spot; ♂ first joint of front tarsi not broader; ♀ head spotted with white; ♂ ♀; *notatus* Fabr.? Hald.; 4.5—5.5 mm.; Atlantic States.....3. **detritus** Oliv.

a.—Ferruginous brown, elytra darker with spots as above, (type Olivier).

Prothorax smooth shining; elytra as above; ♂ first joint of front tarsi broader; ♂ ♀; 3.5—5.5 mm.; Mid. and West. States.....4. **mammifer.**

* Suffrian describes the tooth of the prothoracic flanks as rectangular in *sulphuripennis*, and obtuse in *formosus*. I can perceive no special difference, and I have therefore placed them as the same, giving precedence to the name *formosus* over *sulphuripennis*, which is expressive only of certain varieties.

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α.—Anterior spot of elytra reduced in size, reaching only to the fifth stria; side margin of prothorax white; *sellatus* Suffr.

β.—Anterior spot of elytra larger, connected with some yellow narrow basal spots; prothorax with side margin and two basal spots white; *pretiosus* Mels.

γ.—Elytra yellow with an indistinct dark transverse band behind the middle; ♀.

δ.—Elytra entirely yellow; ♀; *luteipennis* Mels.

4.—Prothoracic flanks obtusely toothed under the antennæ; scutel acutely triangular; ♀; *mammifer* δ.

Prothoracic flanks distinctly toothed under the antennæ; scutel rounded behind; body broader, and elytral striæ finer; ♂ ♀; 3.5 mm.; Florida, (Hubbard and Schwarz).....5. **croceipennis** n. sp.

5.—Color various; elytra vittate; prothoracic flanks obtusely toothed under the antennæ; 3—4 mm.; Atlantic region.....6. **lituratus** Fabr.

α.—Black, prothorax yellow, with three black spots, the middle one larger; *lituratus* Fabr.; varies 1, black vittæ of elytra confluent; *castus* Mels.; *recurvus* Say; 2, prothorax black, side margin yellow; 3, black, elytra with a subapical yellow spot.

β.—Black, head and prothorax ferruginous, elytra vittate; *lativittis* Germ.

γ.—Ferruginous, elytra black with yellow stripes; 5-*vittatus*.

§ 2. Cryptocephalus (gen.).

Prosternum elevated at or near the tip forming a short process in ♂, nearly flat in ♀; black, elytra with four red spots, (rarely entirely yellow); striæ ten composed of large punctures, fifth and eighth not dislocated; antennæ very long and slender.....2.

Prosternum with an apical lobe or cusp, longer in ♂ than ♀.....4.

Prosternum broadly truncate in front ♂ ♀.....9.

2.—Glabrous and shining above.....3.

Finely pubescent above and beneath; prothorax finely punctured; elytra with the base, sides as far as the middle, and apical spot red; ♂ with prosternal process directed backwards; hind margin of prosternum nearly truncate; ♂ ♀; 4—5.5 mm.; Ks.; Tex.....7. **mucoreus** Lec.

3.—Elytra with an oblong humeral spot extending along the sides, and an apical spot red; 3.5—5 mm.; Atlantic region.....8. **quadrimaculatus** Say.

α.—Humeral spot occupying the whole base; ♂ ♀; *notatus* Oliv.,* Fabr.?; 4-*maculatus* Say, Suffr.

β.—Humeral spot extending across the base and along the sides, uniting with the apical spot, and leaving a saddle-shaped black spot, and a small marginal blotch behind the middle; ♀; Minn.; Ks.; Fla.

γ.—Humeral spot not extending across the base; apical spot wanting.

δ.—Elytra entirely orange yellow; ♂ ♀; *fulvipennis* Hald.

Elytra with a broad transverse red spot in front of the middle, extending along the sides to the base; also an apical spot; *notatus* Suffr. (Fabr.?); *distinctus* Hald.; 3—4 mm.; D. C.; Fla.. .... 9. **distinctus** Hald.

α.—Inner margin of anterior spot abruptly curved; ♂ ♀.

β.—Inner margin of anterior spot oblique; ♀.

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* I have discarded the specific name *notatus* as leading only to confusion; it seems with the uncertainty of types equally applicable to Nos. 8 and 9.

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Smaller and more slender, humeral spot oblong, a little wider behind, sometimes much reduced, hardly attaining the base; apical spot as usual; ♂ ♀; 2.5—3 mm.; Atlantic region.....10. **quadruplex** Newm.

a.—Humeral spot much larger, reaching to the middle of the sides of the elytra; ♂ ♀; *quadriguttulus* Suffr.; Ks.; Ill.

4.—Elytra variously spotted; striæ usually represented by rows of very large distant punctures.....5.

Elytra with regular impressed rows of punctures; yellow each with three oblique narrow black lines, sometimes obsolete.....7.

Elytra with regular rows of punctures; yellow each with two broad black or brown stripes, sometimes confluent, sometimes wanting; (prosternum nearly truncate behind, apical lobe acute in ♀).....8.

Elytra with regular punctured striæ; prosternum broadly lobed in front, bispinose concave and deeply emarginate behind; black, cylindrical, prothorax shining red; ♂ spines of hind angles of prosternum perpendicular; ♀ spines horizontal; 3.7—4.7 mm.; Cala.; Or.

11. **sanguinicollis** Suffr.

a.—Entirely black; ♂ ♀; *nigerrimus* Crotch.

5.—Prothorax yellow, with four black or brown stripes.....6.

Ferruginous; elytra black with rounded pale yellow spots arranged 2, 2, 2, 1, the last being apical; striæ not impressed, composed of moderately large punctures, the two next to the outer one much dislocated; prosternum deeply emarginate behind, lobed in front, lobe longer in ♂ than ♀; ♂ ♀; *lautus* Newm.; 4—5.5 mm.; Atlantic region...12. **guttulatus** Oliv.

a.—Inner spot of second band nearly obsolete; (this variety resembles *C. badius* Suffr., but is readily distinguished by the anterior lobe of the prosternum); ♀.

Prothorax brown with side margin and two basal spots yellow; elytra yellow, with very large distant black punctures, and spots arranged 4, 3, 2, in three transverse bands; ♂; 5 mm.; Tex., (Ulke).

13. **cribripennis** n. sp.

6.—Elytra yellow with black spots arranged 3, 2, 2; sixth and seventh striæ not conspicuously dislocated; ♂ ♀; 4.8—5.3 mm.; Ga.; Tex.

14. **bivius** Newm.

Elytra yellow with brown spots confluent into three transverse bands, the front one of which rarely attains the margin; sixth to eighth striæ conspicuously dislocated; ♂ ♀; 4—5 mm.; Pa.; Ga.; Ks.; N. Mex.

15. **leucomelas** Suffr.

a.—Brown bands confluent so as to leave only wedge-shaped yellow spots near the margin; ♂; *vitticollis* Lec.

Elytra yellow with large brown spots confluent longitudinally on the disc, and two posterior spots near the margin; yellow lines of prothorax narrow, the two middle ones interrupted; sixth and seventh striæ not dislocated; ♂ ♀; 5 mm.; Cala .....16. **castaneus** n. sp.

7.—Prothorax yellow with four ferruginous stripes; elytra with regular deep striæ, seventh interrupted, eighth short, oblique; each elytron with three narrow oblique dark stripes; ♂ prosternum with a cusp near the front margin, hind margin slightly emarginate; 3.2 mm.; Wyoming, one specimen.....17. **amatus** Hald.

a.—Dark stripes of prothorax and elytra wider, confluent.

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Yellow, prothorax not varied; elytra with seven deep regular discoidal striæ, the sutural stria being reduced to three or four punctures, and the seventh to a small hook attached to the eighth in front of the middle; alternate interspaces spotted with brown; prosternum nearly truncate in front, feebly emarginate behind; ♀; 3 mm.; Texas; two specimens.

18. **defectus** n. sp.

Ferruginous or brown; prothorax with sides, and sometimes two discoidal spots yellow; elytra with finer regular striæ, which are alternately more approximate, and three narrow oblique black stripes, seventh stria reduced to a short hook; prosternum with two large rounded lobes behind; ♂ with an acute elevated apical process, ♀ nearly truncate; ♂ ♀; 4—5.5 mm.; Ks.; Tex.; N. Mex.; B. Col. .....19. **confluens** Say.

a.—Piceous black, elytral stripes broad, confluent, leaving traces of narrow yellow lines; ♂.

Dirty yellow, varied with brown; elytra with eight deep strongly punctured striæ, somewhat approximated by pairs, sixth obliquely dislocated behind, seventh short; stripes three on each elytron, ill-defined, sometimes wanting; prothorax brown, with sides and basal spots yellow; prosternum with apical lobe acute in ♂, obtuse in ♀: 4—5 mm.; Cala., (S. Diego).....20. **spurcus** Lec.

a.—Prothorax yellow, immaculate.

8.—Robust, shining, rufous or ferruginous; elytra yellow, usually with two broad oblique black stripes, striæ fine, not impressed; prothorax finely punctulate, with sides and two oblique basal spots yellow; ♂ ♀; *venustus* Fabr., Suffr.; *flaccidus* Suffr.; 4.3—5.3 mm.; N. Y.; Ill.; Ks.; Ga.; Tex. Varies greatly in color.....21. **venustus** Fabr.

a.—Prothorax entirely ferruginous; *ornatus* Fabr. (nec Suffr.).

β.—Elytral stripes more or less confluent.

γ.—Elytra black with sides, apical hook and narrow basal spot yellow; ♂; *hamatus* Mels.

δ.—Elytra black, with sides and apical margin yellow; ♂ ♀; *cinctipennis* Randall.

ε.—Elytra yellow, with a small brown humeral spot; ♀; *simplex* Hald.

Robust, dull yellow, tinged with ferruginous, less shining; elytra with usually ill defined brown stripes; with ten regular strongly punctured deep striæ; prothorax densely punctured; ♂ ♀; *incertus* Hald., (nec Olivier); *ornatus* ‡ Suffr.; 5 mm.; Ga.; Fla.....22. **obsoletus** Germ.

9.—Prothorax smooth or finely punctured.....10.

Prothorax very coarsely and usually densely punctured.....17.

10.—Elytra with two broad oblique stripes.....11.

Elytra with three narrow, sometimes ill-defined stripes.....15.

Elytra spotted or fasciate.....16.

Bright yellow, elytra black, with eight deep punctured discoidal striæ, (the real seventh being very short); prosternum flat, feebly lobed in front, obtusely bilobed behind; antennæ dark, base pale; ♂ ♀: 2.5—3.2 mm.; Ark.; Fla*.....23. **nanus** Fabr.

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*This species would perhaps be equally well placed after *defectus* but the elytra are not striped, and the prosternum of the ♂ is not lobed. The ♂ of the latter is not known, but the resemblance to No. 13 in marking is very obvious.

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11.—Prosternum flat or slightly convex at the middle.....12.

Prosternum carinate for its whole length; form cylindrical-oval, prothorax ferruginous, nearly smooth, sides and two basal spots yellow; elytra with two broad oblique black stripes, striæ fine not impressed; ♂; 5.5 mm.; Ks.; one specimen*.....24. **carinatus** n. sp.

12.—Prosternum entirely flat.....13.

Prosternum feebly convex along the middle.....14.

13.—Prothorax smooth, ferruginous, sides yellow, elytra with confluent stripes, and coarser somewhat impressed striæ; ♂; 4.2 mm.; Ga.; one specimen. Probably only an extreme variation of the next, in which case this name has precedence.....25. **insertus** Hald.

Prothorax feebly punctulate, ferruginous, sides and two basal spots yellow; elytra with fine not impressed striæ, and two broad oblique black stripes sometimes confluent, sometimes interrupted, sometimes wanting; ♂ subcylindrical; ♀ usually a little more oval; *ornatus* ‡ Say, *venustus* ‡ Hald.; ? *bispinus* Suffr.; 4—6 mm.; Atlantic region...26. **calidus** Suffr.

a.—Outer elytral stripe interrupted; ♂ ♀.

β.—Outer stripe interrupted, inner ones confluent along the suture; ♂.

14.—Prothorax smooth, pale yellow, sometimes with three faint clouds; elytra with stronger, somewhat impressed striæ; stripes distinct or obliterated; ♂ ♀; Ga.; Tex.....27. **albicans** Hald.

Prothorax obsoletely punctulate, very convex and declivous in front; elytra with fine striæ, the outer ones somewhat impressed, and two broad oblique black stripes, epipleuræ black; form robust; ♂ ♀; 5—7 mm.; Mass.; N. Y.....28. **gibbicollis** Hald.

a.—Elytral stripes wanting, only a short humeral stripe and epipleuræ remaining black; ♀; Ga.

Prothorax finely but obviously punctured, very convex and declivous in front, ferruginous with sides and indistinct spots yellow, or yellow with a transverse ferruginous cloud; elytra with striæ of coarse punctures, outer ones scarcely impressed, stripes represented by small spots; form robust; ♂ ♀; 5.4—7.5 mm.; Ga.; Fla.....29. **aulicus** Hald.

15.—Smaller, red-brown, above brownish yellow, prothorax densely punctured, with three brown stripes or spots; elytra deeply striate, with three oblique brown stripes;† prosternum quite flat, strongly margined at the sides, acutely bilobed behind; ♂ ♀; *vitatus* Hald.; ? *lixus* Newm.; 3.5—4.3 mm.; Middle States.....30. **trivittatus** Oliv.

Still smaller, more cylindrical, red-brown; prothorax sparsely punctulate, scarcely spotted; elytra with eight deep discoidal striæ, and three indistinct more or less confluent stripes; prosternum slightly convex along the middle, truncate in front, obtusely bilobed behind; ♂ ♀; *lineolatus* Hald.; 3—3.5 mm.; Mid. and West. States‡.....31. **incertus** Oliv.

Very small, dirty yellow, prothorax sparsely punctured, sometimes with brown marks; elytra with deep regular punctured striæ, (seventh very short), and traces of three narrow brown stripes; prosternum flat, truncate in front, very little emarginate behind; ♂ ♀; 1.8—2.2 mm.; Ga.; Fla.....32. **pumilus.**

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* Additional specimens are required to establish the validity of this species.

† The inner one is wanting in all my specimens, or feebly indicated.

‡ This species reverts towards 18. *defectus*.

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16.—Brown, antennæ and legs ferruginous, elytra pale yellow, with three interrupted brown vittæ forming spots occupying the alternate intervals; medial spots usually confluent into a large common transverse brown blotch; striæ composed of rather distant punctures, the two next to the outer one irregularly connected, and with a short intermediate series; prothorax ferruginous, with or without basal spots, sides yellow; prosternum not lobed in front, emarginate and acutely toothed behind; ♂ ♀; *dispersus* Hald.; 4—7 mm.; Pa.; Ill.; Ga.; Ks.; Tex.

33. **mutabilis** Mels.

Varies with spots more or less confluent.

Varies also with the prothorax smooth or distinctly punctured.

a.—Prothorax smooth, with the bead of the margin, a very broad dorsal stripe, and a spot each side black; spots of elytra and under surface black; antennæ and legs ferruginous; ♀; Arkansas, (Bolter).

Ferruginous or brownish yellow; prothorax smooth or nearly so, and very shining; elytra yellow, with three transverse undulating brown fasciæ formed by confluent spots; striæ impressed, punctured, the two next to the outer one interrupted, and connected transversely; prosternum not lobed in front, feebly emarginate behind; ♂ ♀; 3.8—5 mm.; Texas.

34. **fulguratus** n. sp.

Less robust, brown; prothorax shining, sparsely punctulate, apical and lateral margins and hind angles sometimes yellow; elytra with impressed strongly punctured brown striæ, the two next the outer one (sixth and eighth to wit, the seventh being represented by only a few punctures), interrupted and connected transversely; ground color brown, with yellow marks as follows; a basal band composed of confluent spots extending to the sixth stria, a marginal transverse spot just before the middle extending inwards to the fifth stria; an interrupted transverse band behind the middle, and an apical spot; prosternum not lobed in front, deeply emarginate and acutely lobed behind; ♂ ♀; 3—4.2 mm.; Pa.; Ky.; Fla*.....35. **badius** Suffr.

a.—Interval between the third and fourth stria with a small yellow spot before the middle.

17.—Cylindrical testaceous, tinged with brown; prothorax densely aciculate; elytra with ten regular deep punctured striæ; ♂ ♀; *rugicollis* ‖ Hald.; 3—4 mm.; Mass.; Ga .....36. **Schreibersii** Suffr.

More robust, testaceous tinged with rufous; prothorax densely and coarsely punctured; elytra with ten coarsely punctured striæ, seventh and eighth confused; usually obsoletely trifasciate; ♂ ♀; 3—4.5 mm.; Mass.; Fla.; Ill.; Tex.....37. **tinctus** n. sp.

Of the same form and color as the preceding, prothorax densely and coarsely punctured; striæ of elytra irregular, the outer ones confused, and therefore seemingly more numerous; elytra indistinctly fasciate with rufous; prosternum deeply emarginate, excavated, and acutely bilobed behind; ♂; ? *fasciatus* Say; 3.5 mm.; Ga...38. **lateritius** Newm.

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* The elytral pattern of this species has the same type as the two preceding, and differs only by the greater extension of the brown color; the three are however readily distinguished by the prosternal characters, and the differences in the elytral striæ, as above described. They form however, a little group sufficiently from any of the preceding ones.

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Very small dull reddish yellow, beneath dark brown; prothorax coarsely but not densely punctured, sides oblique, less rounded than usual; elytra with dusky suture, striæ strongly punctured, entirely regular, interspaces slightly convex; prosternum quadrate, truncate before and behind; ♀ with the ventral fovea shallow, margin distinct in front, ill-defined behind; ♀; 2 mm.; Northern Illinois, Mr. F. M. Webster, one specimen; Va.*.....39. **striatulus** n. sp.

Unrecognized species.

C. (Bassareus) areolatus Suffr., Linn. Ent. vi, 301, Texas.—Differs from *congestus* by smaller size, and rectangular tooth of prothoracic flanks.

C. (Bassareus) egenus Suffr., ibid. 311, Delaware.—Probably a variety of *mammifer*.

C. luteolus Newm., Mag. Nat. Hist. 1840, 250, Florida.

C. quadriforis Newm., Entomologist, 78, N. C.—Seems to resemble 4-*maculatus*, but the elytra are said to have the punctures "haud linea dispositis." Perhaps a distorted individual.

PACHYBRACHYS Chevr.

The species of this genus are numerous, and apart from the generic characters are recognized by the outer striæ of the elytra being usually completely confused, and the inner ones tortuous or irregular, separated by more or less sinuous and interrupted ridges. Rarely, however, *striatus* and category 7, the striæ are quite regular, and these added to the dense punctuation of the prothorax, give the insect a strong resemblance in appearance to *Cryptocephalus Schreibersii*, etc. In this case the difference in form of the prosternum alone remains as a generic character.

There are certain mottled forms of small size, varying in color from black with white dots, to ochreous yellow with pale brownish mottlings, which cannot be separated definitely into species without farther observation of the limits of variation, and the habits of the particular sets; fuller series collected at the same time and place are needed to enable these forms to be studied with profit. I have been unable to identify the nominal species described by Suffrian of these sets, but have the authentic types of Melsheimer's and Haldeman's species for comparison at any future time.

As this table is intended solely for the identification of species, I have omitted such minor details as the spots on the head, pygidium and ventral surface, except where they seemed to be important for the separation of closely allied forms. I have for the present left the species under category 17 undefined, but a list of those which differ-

* The epipleural lobes are less developed and the outer striæ are more nearly straight than in any other species known to me; the claws are quite simple as in all the preceding species.

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ent authors suppose to be distinct is given at the end of the table. This complex of forms seems to me to be similar to that existing in the genus *Colaspis*, placed by Mr. Crotch as *C. tristis* Fabr., in which neither form, size, or color sculpture seem to be fixed within definite limits.

Upper surface pubescent; prosternum sulcate.....2.
Upper surface glabrous.....4.
2.—Prothorax with scutellar lobe broad, base margined as usual.....3.
Prothorax with scutellar lobe more prominent, very finely margined, sides oblique, not rounded, disc feebly aciculate, subcarinate, more than one-half as long as the elytra; striæ of elytra finer and more distant than usual, with only a few confused punctures near the scutel; ochreous yellow, metasternum and greater part of abdomen blackish; 2.5—4 mm.; Lower Cala.....1. **Xanti** Crotch.
3.—Black opake, densely punctulate, sides of prothorax, basal and lateral margins of elytra yellow; 3.5 mm.; Cala.....2. **Donneri** Crotch.
Larger, black, densely punctured, *pubescens* ‖ Oliv.; 4—4.5 mm.; Atlantic region, Texas.....3. **morosus** Hald.
a.—Elytra more coarsely punctured.
Piceous black, densely and finely punctured; sides of prothorax and elytral margin especially near the apex, ferruginous; elytra with irregular rows of more distinct punctures; 3.5—4.5 mm.; Cala.....4. **analis** Lec.
4.—Colors of upper surface definitely arranged, prosternum sulcate.....5.
Color uniform, or irregularly mottled.....11.
5.—Yellow and black or brown, striped.....6.
Red and black.....9.
Yellow and black, spotted.....10.
6.—Elytra with striæ in great part well-defined.....7.
Elytra confusedly punctured, two outer striæ distinct.....8.
Brown, base of antennæ, upper surface and legs ochreous; head with occiput and large frontal spot brown; prothorax strongly punctured, with an M-shaped brown mark; elytra with a dark humeral spot, and narrow sutural line, striæ regular, though sinuous; 3.5—4.5 mm.; Tex.; Ks.....5. **striatus** n. sp.
a.—Entirely black; Colo.
7.—Brown, legs yellow; upper surface pale yellow; prothorax strongly not densely punctured, with three brown stripes, the middle one wider; elytra each with suture and two brown stripes, short striæ near the scutel confused; scutel brown; 4 mm.; Ks.; Neb.....6. **virgatus** n. sp.
Brown, or black, legs, prothorax and elytra pale yellow; prothorax shining rather strongly punctured, with brown spots, the middle one divided in front, and confluent with the lateral ones, forming a dark M; elytra with suture and two discoidal stripes dark, the inner one shorter; the marginal stria approximates the margin about the middle, so that the epipleural lobe appears more prominent than usual, and the margin is blackish; *viduatus* ‡ Say, Hald.; 2.5—3.5 mm.; Atlantic region to Col.; Tex.; Fla.....7. **litigiosus** Suffr.
a.—Elytral vittæ confluent, legs spotted with black.
β.—Prothorax sparsely less strongly punctured.
γ.—Almost entirely black.

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Like the preceding, prothorax with three stripes, the middle one V-shaped, widely bifurcated in front, punctures rather strong; elytral vittæ as in the preceding, but the striæ are deeper, the marginal stria is not confluent with the margin, and the latter is not darker behind the epipleural lobe, which is of the usual form; 2.5—3 mm.; Tex.*...8. **dubiosus** n. sp.

a.—Middle stripe of prothorax not wider in front, narrowly divided as far as the middle.

Black, legs, ventral margins and part of upper surface yellow; prothorax nearly three times wider than long, densely rugosely punctured, margins and narrow median line from front margin to middle yellow; elytra with common sutural and two discoidal black stripes, narrow lateral bead black, epipleural lobe wider than usual; *marginaticollis* Randall; 3—4 mm.; Eastern, Middle and Western States. .....10. **othonus** Say.

a.—Smaller, prothorax with basal spots; lateral head of elytra not dark; pygidium entirely yellow.

8.—Elytra yellow, each with two stripes and marginal bead black.....9.

Elytra yellow, with one broad stripe and marginal bead black; strongly punctured, prothorax and thighs ferruginous; beneath, tibiæ and tarsi blackish, last ventral and dorsal segments margined with yellow; 3.5—4 mm.; Cala.....11. **circumcinctus** Crotch.

a.—Elytral stripe broader, sinuous on the outer side.†

Elytra yellow, with two discoidal stripes and marginal bead black, the outer stripe narrower, interrupted, forming two or usually three spots; prothorax moderately punctured, ferruginous, sometimes with sides, median line and basal spots yellow; beneath blackish, legs ferruginous; pygidium and margin of last ventral segments yellow; *bivittatus* Say; *albescens* Suffr.; 3.3—5.5 mm.; Western States to Col.; Tex.

12. **viduatus** Fabr.

a.—The ferruginous color of the prothorax is replaced by blackish brown, the elytral stripes are wider, and the outer one is nearly entire; New Hampshire, (Blanchard).

9.—Shining black, head and legs spotted with white; prothorax with sides, and narrow medial line abbreviated behind, white; elytra sparsely punctured, striæ distinct at sides and behind, red, with a wide common black sutural band extending nearly to the tip; 3 mm.; Fla.

13. **limbatus** Newm.

Opake black, elytra densely less coarsely punctured, only the outer stria well-defined; red with a wide common sutural band extending nearly to the apex, and a transverse black line at about three-fourths the length, running to the margin; 3.5 mm.; Texas.....14. **cruentus** n. sp.

a.—Transverse black line wider and dilated at the sides, dividing the red into two spots.

β.—Colored as in *a*, punctures of elytra partly arranged in rows, prothorax with an ill-defined smooth medial line.

Black, shining, prothorax usually red; elytra strongly punctured, striæ distinct at sides and behind, interspaces not convex; 3.8—5 mm.; Texas.....15. **hybridus** Suffr.

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* A larger series will probably show that this species is not valid.

† The variety shows the transition towards the next species, in which the outer dilated part of the elytral stripe becomes detached as a separate stripe.

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α.—Prothorax black, with sides and basal spots red; elytra with an irregular elongate apical white spot.

β.—Prothorax black with sides red; elytra as in α.

γ.—Prothorax black; elytra as in α.

Opake black, prothorax with sides, apical margin, median line abbreviated behind, and two basal spots red; elytra very strongly punctured, striæ very irregular at sides and behind, interspaces narrow, convex; 3.7—5 mm.; Pa.; Fla.....16. **trinotatus** Mels.

α.—Head with two red spots.

10.—Opake, black, legs and upper surface spotted with yellow, prothorax strongly densely punctured, with lateral and apical margin, anterior dorsal line and two basal spots yellow; elytra strongly punctured, striæ very irregular, visible only behind the middle, outer interspaces convex; basal and apical margin, humeral blotch surrounding a black spot, a subsutural smooth spot, and a large blotch near the sides pale yellow; pygidium and last ventral segment spotted with yellow; *M-nigrum* ‖ Hald.; 3—3.7 mm.; Mass.; Ga.....17. **intricatus** Suffr.

Beneath black, sides of ventral segments and pygidium spotted with yellow; legs yellow, hind thighs sometimes with a black or brown spot; above yellow, varied with black; prothorax strongly punctured, with a dorsal stripe wider and narrowly cleft in front, black; there is also a large quadrate spot each side, extending nearer the base than the tip; elytra with tolerably regular strongly punctured striæ, black, basal margin, apical blotch, and irregular cruciform spot extending from the humerus to behind the middle pale yellow; the transverse branch of the cross is oblique and extends from the margin nearly to the suture; form narrower and more cylindrical than usual; *mollis* Hald.; 1.6—3 mm.; Pa.; Fla.; Ill.; Ks.*.....18. **tridens** Mels.

α.—Prothoracic black spots confluent; Pa.

β.—Middle stripe of prothorax not divided, posterior branch of elytral spot wanting; Ks.

γ.—Colors suffused, the black becomes brown, and the yellow becomes dirty ochreous; the spots are ill-defined, and sometimes reduced to three brown clouds on the prothorax, and a large irregular sutural blotch becoming wider in front; Tex.

δ.—Prothorax with three brown stripes; elytra with sutural stripe, an irregular interrupted dorsal stripe, and three marginal ill-defined spots brown; *conformis* Suffr.; Fla.; Col.

11.—More or less mottled in color.....12.

Uniform opake black, robust, prothorax very densely punctured, hind angles obtuse not rounded; elytra with distinct coarsely punctured striæ, except near the scutel; 2.5—3.5 mm.; Ga.; Ill...19. **carbonarius** Hald.

12.—Sides of prothorax strongly rounded and incurved near the base; prosternum deeply longitudinally concave.....13.

Sides of prothorax obliquely broadly rounded or straight not incurved behind, hind angles not rounded, with well-defined points; prosternum flat, scarcely concave, not narrower behind.....16.

* This species, through its suffused varieties, forms an excellent transition to some of those (in 17) with irregularly mottled elytra. It seems, however, to differ by the prosternum more concave in front.

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13.—Hind angles of prothorax distinct; upper surface shining, elytra with two or three outer striæ distinct.....14.

Hind angles of prothorax rounded, upper surface usually opake very strongly punctured, elytral interspaces convex.....15.

14.—Black, above mottled with yellow, prothorax with narrow lateral and apical margin, short anterior line and two small basal spots yellow; elytra with two convex interspaces near the sides; basal margin, apex and a few irregular small spots yellow; head and legs varied with yellow spots; 3.5—4.5 mm.; Cala.....20. **lustrans** n. sp.

a.—Black, head slightly spotted.

Beneath black, legs and upper surface yellow, mottled with brown, punctures of elytra somewhat less confused, outer interspaces not elevated; tarsi blackish; 4.8 mm.; Veta Pass, Col.; one ♀...21. **renidens** n. sp.

Beneath black, legs ferruginous, tibiæ and tarsi dusky, upper surface dirty yellow, mottled with brown; prothorax with three brown stripes, the middle one divided in front, the side ones shorter; elytra with the striæ not much confused except near the scutel, interspaces not very convex, with three submarginal spots and a dislocated interrupted dorsal vitta brown; 3.5 mm.; Texas.*.....22. **subvittatus** n. sp.

15.—Yellow and brown, elytral striæ sinuous not approximate, interspaces rather wide, with a few confused punctures only near the base; beneath brown, legs and upper surface yellow mottled with brown; prothorax rather densely but irregularly punctured, sides oblique in front, rounded behind, basal angles almost rounded, elytra irregularly fasciate with brown; 3.5—5 mm.; Tex.....23. **turbidus** n. sp.

Black, opake in great part, mottled with small white dots on upper surface; prothorax densely punctured with a faint remnant of a smooth dorsal line, sides oblique in front, rounded behind, basal angles almost rounded; elytra confusedly coarsely punctured over the greater part of the surface, striæ visible at the sides and behind, approximate, interspaces narrow; *æsculi* Mels., *mœrens* Stal.; 3.2—4 mm.; Pa.; Ga.; Tex. 24. **luridus** Fabr.

a.—Prothorax red at the sides, femora with a yellow spot.

β.—Prothorax entirely red, femora spotted; Texas.

Smaller than *luridus*, opake black; elytra with fewer confused punctures, and more white spots; legs in great part testaceous; pygidium spotted with testaceous; 2.6 mm.; Ga.; one specimen. (Perhaps not different from *luridus*).....25. **femoratus** Oliv.

Black, legs testaceous, thighs with a dusky spot; above mottled with small white spots; prothorax nearly three times as wide as long, rounded on the sides, basal angles rounded, surface densely punctured, with irregular small smooth pale spaces, and anterior dorsal line; elytra with irregular deep striæ at sides and behind, base and along the suture confusedly punctured; pygidium spotted with testaceous; 3 mm.; Texas, Belfrage, one specimen.†.....26. **brevicollis** n. sp.

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* If the markings were more regular, and the punctures near the scutellum less confused this species might be placed near *litigiosus*.

† Easily known by the very transverse prothorax; it greatly resembles some of the forms in category 17, but the prosternum is deeply and broadly channeled and is narrower behind, as in nearly all the preceding species.

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16.—Punctures of elytra more or less irregular, striæ visible at sides and behind, sometimes regular over nearly the whole surface. .....17.

Punctures of prothorax and elytra uniform, two striæ visible at the sides; upper surface dull ochreous clouded with brown; prosternum flat, rectangularly truncate; *punctatus* Hald.; 2—3 mm.; Atlantic and Pacific regions.....27. **hepaticus** Mels.

17.—Red and black.....18.

Yellow, brown or black, mottled, sometimes entirely black, sometimes entirely yellow.*

18.—Black, opake, prothorax with sides and dorsal spots red, densely punctured, basal angles almost rounded; elytra with sinuous deep striæ at the sides and behind, confusedly punctured in front, with a broad irregular band from the side almost to the suture; ♂ ♀; 2.7—3.5 mm.; Middle States.....28. **subfasciatus.**

Very similar to *subfasciatus*, but broader; elytra with broader transverse band, prothorax with sides red; ♀; 2.7—3.5 mm.; Lake Sup., N. Y. 29. **dilatatus** Suffr.

The names of the indefinite forms which are not tabulated are as follows:

P. atomarius Mels., Pr. Ac. Nat. Sc. Phila. iii, 170.
P. cælatus Lec., ibid. 1858, 84.
P. characteristicus Suff., Linn. Ent. vii, 176.
P. sparsus Newm., Entom. 79.
P. flavicornis Mels., Pr. Ac. Nat. Sc. Phila. iii, 172.
P. infaustus Hald., Journ. Ac. Nat. Sc. Phila. 2d, i, 262.
P. livens Lec., Pr. Ac. Nat. Sc. Phila. 1858, 54.
P. luctuosus Suffr., Linn. Ent. xii, 401.
P. melanostictus Suffr., ibid. vii, 191; xii, 403.
P. nigricornis Say, Journ. Ac. Nat. Sc. Phila. iii, 436.
P. obsoletus Suffr., Linn. Ent. vii, 200.
P. oculatus Suffr., ibid. vii, 178.
P. pallidipennis Suffr., ibid. xii, 406.
P. peccans Suffr., ibid. vii, 192.
P. pectoralis Mels., Pr. Ac. Nat. Sc. Phila. iii, 171.
P. picturatus Germ., Ins. Nov. 560; Suffr., Linn. Ent. vii, 209; *M-nigrum* Mels., Pr. Ac. Nat. Sc. Phila. iii, 170; (*viduatus* var.?).
P. pulvinatus Suffr., Linn. Ent. vii, 151.
P. signatifrons Mann., Bull. Mosc. 1843, ii, 311; Suffr., loc. cit. vii, 167.
P. sobrinus Hald., Journ. Ac. Nat. Sc. Phila. 2d, i, 262; *pectoralis* ‡ Suffr., Linn. Ent. vii, 187.
P. spumarius Suffr., loc. cit. vii, 179.

* These forms vary in color, size, shape and sculpture, but so imperceptibly, that I am unwilling to attempt any separation of the species. Those mentioned in the books are numerous, but seem to be in great part opinionative. The prosternum is broad, and but very slightly concave, and by this character they may be separated from such of the preceding species as tend to resemble them by irregularity of markings. Careful observation of habits and food-plants, and the collection of larger series in each locality are still necessary in this group of forms.

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MYODITES Latr.

The European *Myodites subdipterus* is parasitic on *Halictus*. As that genus is well represented in our fauna, a careful quest in its cells at the proper season would probably result in the procuring of a good supply of the species here described. Several of them are now represented by single specimens, and larger series are needed of all.

Abdomen yellow; (♀; ♂?); first joint of hind tarsi elevated, obliquely truncate and emarginate at tip; elytra yellow, shining.....2.
Abdomen black (♂ ♀).....3.
2.—First joint of hind tarsi stout and thick, not more than one-half longer than second; prothorax brownish, nearly smooth; vertex obtusely rounded, sparsely punctured; 7.3 mm.; Kansas.....1. **Popenoi** n. sp.
First joint of hind tarsi long, thicker than the second, and more than twice as long; prothorax nearly smooth; vertex sparsely punctured not carinate; 7.5 mm.; Md.....2. **semiflavus** Lec.
First joint of hind tarsi long, very little thicker than second; prothorax and vertex densely punctulate, the latter carinate; 8 mm.; Indian Terr. 3. **scaber** Lec.
3.—Elytra shining, yellow or black only at the base.....4.
Elytra alutaceous, more or less blackish or piceous; first joint of hind tarsi long, but slightly thicker, not obliquely truncate.....6.
4.—First joint of hind tarsi stout, not more than one-half longer than the second, obliquely truncate and emarginate at tip; elytra yellow; prothorax sparsely punctured, smooth each side in front; 6 mm.; N. Y. 4. **luteipennis** Lec.
First joint of hind tarsi long, somewhat thicker than the second, obliquely truncate and emarginate at tip; elytra yellow; prothorax sparsely punctured behind, nearly smooth in front; 5 mm.; Nev...5. **nevadicus** n. sp.
First joint of hind tarsi long, scarcely thicker than the second, not obliquely truncate at tip; head and prothorax densely punctulate.....5.
5.—Elytra entirely yellow; 5 mm.; Cala.....6. **californicus** n. sp.
Elytra black at base; 6 mm.; Penn.; Ill.....7. **fasciatus** Say.
6.—Hind tibiæ slightly compressed.....7.
Hind tibiæ strongly compressed; black, with a small common dull testaceous elytral spot; 6 mm.; Fla.....8. **Schwarzi** n. sp.
7.—Vertex strongly elevated and compressed; 6.5 mm.; N. Y...9. **Zeschii** n. sp.
Vertex feebly elevated.....8.
8.—Pectus and abdomen very densely punctured; 5 mm.; Ill.; N. Y. 10. **Walshii** Lec.
Pectus and abdomen more strongly less densely punctured; 2.5—3 mm.; Can.; N. Y.; D. C.....11. **stylopides** Newm.

M. Popenoi.—Honey yellow, head, sides, front and dorsal line of prothorax black, middle and sides of metasternum, and hind coxæ blackish. Head shining, sparsely finely punctured, vertex prominent, obtusely rounded. Prothorax and elytra smooth. Metathorax blackish. Under surface shining very finely and sparsely punctulate. First joint of hind tarsi thick, as long as the two following united, obliquely truncate at tip, slightly emarginate beneath. Length 7.3 mm.

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♀ antennæ blackish, tinged with testaceous especially at base, pectinate; wings with broad transverse band dusky.

Colorado, one ♀, collected by Prof. E. A. Popenoe, to whom I dedicate it in recognition of his excellent labors in making known the Coleopterous fauna of Kansas. Differs from *M. semiflava* and *scabra* by obtusely rounded vertex and smooth prothorax, and by first joint of hind tarsi.

M. nevadicus.—Black, head hairy with short erect cinereous hair, front flat, vertex elevated, obtusely conical, punctulate. Prothorax shining, sparsely pubescent, not densely punctured, smooth in front and near the sides. Scutel smooth. Elytra nearly smooth, obtusely rounded, entirely honey-yellow. Beneath finely punctured. Hind tarsi with first joint as long as the fourth, slightly thickened, obliquely truncate and emarginate at tip. Length 5 mm.

♂ antennæ brown, plumose, front legs yellow, lower margin of middle thighs and middle tibiæ testaceous; hind tibiæ at tip and base of tarsi tinged with testaceous; wings hyaline.

♀ antennæ black, pectinate; front legs tinged with testaceous; wings with anterior margin and broad transverse band dusky.

Nevada, H. K. Morrison. I am indebted to Dr. Horn for a pair of this species.

M. californicus.—Black, head hairy with erect grayish pubescence, front flat, vertex broadly rounded, densely punctulate; prothorax finely and densely punctulate. Scutel smooth. Elytra shining, honey-yellow, finely very sparsely punctulate. Beneath densely finely punctured. Hind tibiæ with the first joint as long as the others united, scarcely thicker, not emarginate at tip. Length 5 mm.

One ♀, California; precise locality unknown. The antennæ and legs are entirely black, and the wings very faintly fasciate with dusky.

M. Zeschii.—Black; head very densely punctulate, front flat, vertex pubescent with erect hair, acutely conical and very prominent. Prothorax densely punctulate. Scutel smooth, shining. Elytra opake, densely rugose and punctulate, dull fulvous, with a large humeral spot and posterior transverse blotch blackish. Beneath densely and finely punctured. Hind tarsi with first joint as long as the others united, slightly compressed, not distinctly emarginate at tip. Length 6.5 mm.

♂ antennæ smoky testaceous, plumose; front and middle legs dull testaceous, middle tibiæ and hind legs piceous; middle of first three ventral segments slightly yellowish.

One ♂ found at Buffalo, N. Y., was kindly given me by Mr. F. Zesch, to whom I take pleasure in dedicating it. The wings are unusually dark and the dusky band occupies nearly the apical third of the surface.

M. Schwarzi.—Black; head very densely punctulate, front flat, vertex pubescent with erect hairs, obtusely prominent and slightly carinate. Prothorax densely punctulate, with a small smooth callus each side in front of the middle. Scutel shining, smooth. Elytra opake, rugose and punctulate,

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black, with a dark reddish yellow spot near the suture. Beneath densely punctured. Hind tibiæ curved and compressed; tarsi testaceous, hind pair with the first joint as long as the others united, slightly thickened. Length 6 mm.

One ♀; Sumter Co., Florida; Mr. E. A. Schwarz. Allied to *M. Zeschii*, and perhaps the other sex of that species; it differs however by the form of the hind tibiæ and by the vertex being less conical and less prominent, so that in view of the widely distant localities, I am not warranted in considering them as the same. The wings are unusually dark, and the dusky band occupies the whole of the apical third.

The bibliography is given in my note on the species of this genus, Proc. Acad. Nat. Sc. Phila. 1865, p. 96, and need not here be repeated. *Dorthesia flavicornis* Say, Journ. Acad. Nat. Sc. Phila. iii, 274; Ed. Lec. ii, 162, still remains undetermined.

M. americanus Guérin, Icon. Regne An. pl. 34, fig. 5, may be one of the darker colored species above described, but the description and figure are not sufficient to identify it with certainty.

NEMOGNATHA Ill.

The species are numerous, variable in color, and sometimes difficult to distinguish. Large series of specimens will probably shew the propriety of suppressing some of the species here tabulated, but the material examined does not warrant me in operating any farther reduction at present. Some purists write *Nematognatha*, but the amplification seems undesirable. The two groups might readily be separated as distinct genera.

* *Palpi moderately long, not very slender, hairy.*

A.—Outer spur of hind tibiæ very thick, large, obliquely truncate, inner one smaller and shorter; ♂ last ventral segment cleft, fifth impressed; ♀ front tarsi more slender and much more hairy than in the ♂.

Prothorax wider behind, rather densely punctured, abdomen shining sparsely punctured, color variable; ♂ fifth ventral feebly impressed; ♀ front tarsi with erect short hairs; 8—13 mm.; Ks.; Col.; Or.; Tex.; Ariz.
1. lurida Lec.

(*Type*).—Fulvous, tibiæ, tarsi, antennæ, palpi and tips of mandibles dark, or black.

α.—Antennæ, etc., legs and under surface black; ventral segments more or less fulvous; *decipiens* Lec.

β.—Black, head, prothorax and elytra fulvous.

γ.—Black, head and prothorax fulvous.

Prothorax not wider behind, less densely punctured; abdomen brown densely punctulate; color fulvous above, black beneath; scutel and tips of elytra blackish; ♂ fifth ventral feebly impressed; 10 mm.; Cala.; one pair.
2. apicalis Lec.

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B.—Outer spur of hind tibiæ broad, flattened and concave.

Prothorax not wider behind, rather sparsely punctured; abdomen shining sparsely punctured; color variable; ♂ fourth ventral finely punctulate behind at the middle, fifth widely and deeply impressed; ♀ front tarsi with long erect hairs; 8—13 mm.; Ks.; Tex.; Mont.; Col.; Cala. 3. **lutea** Lec.

(*Type*).—Fulvous, antennæ, palpi, tips of mandibles, tibiæ and tarsi dusky; beneath brown or black, ventral margins fulvous.

α.—Legs entirely black.

β.—Entirely pale yellow, antennæ and tarsi blackish; *pallens* Lec.

Prothorax wider behind, densely punctured; abdomen sparsely punctured; color variable; outer spur of hind tibiæ but slightly longer or wider than the inner one, both flattened and obtuse; ♂ fourth and fifth ventrals largely impressed; ♀ front tarsi with long erect hairs; 8—13 mm.; Ks.; Col.; Tex.*.....4. **bicolor** Lec.

(*Type*).—Black, head and prothorax fulvous; ♀.

α.—Beneath black, above fulvous; ♀.

β.—Above and abdomen fulvous, elytra with a dark stripe; ♂ ♀; *discolor* Lec.

γ.—Fulvous, antennæ, palpi, tip of mandibles, tibiæ and tarsi dark; ♂ ♀.

Prothorax scarcely wider behind, sparsely punctured; outer spur of hind tibiæ flattened, broader and obtuse, inner one acute; color fulvous above, black beneath, abdomen sparsely punctured, last ventral segments yellow; elytra with an apical black blotch; ♂ fourth and fifth ventral broadly impressed; ♀ front tarsi with short erect hairs; 7.2—10 mm.; Mont.; Or.; Cala.....5. **dichroa** Lec.

Similar in form and sculpture to *dichroa;* abdomen sparsely punctured; black, prothorax sometimes fulvous or brown; ♂ fourth and fifth ventrals broadly impressed and with median tufts of hair; ♀ front tarsi with long erect hairs; 8.5—9.5 mm.; Cala.; Oregon.....6. **dubia** Lec.

C.—Spurs of hind tibiæ equal, sometimes slender, sometimes obtuse, sometimes slightly flattened.

Elytra finely and very densely punctured.....2.

Elytra less finely and less densely punctured.....6.

2.—Prothorax not wider behind.....3.

Prothorax trapezoidal, wider behind, densely punctured; black, above brownish-yellow, elytra with a wide black stripe, spurs of hind tibiæ obtuse; ♂ as in *piezata;* ♀ front tarsi with erect long hairs; 11 mm.; L. Sup.; Mont. Perhaps only a variation of *piezata*.....7. **palliata** Lec.

3.—Prothorax quadrate, antennæ slender, maxillæ very long.....4.

Prothorax nearly oval, antennæ stouter, maxillæ shorter.....5.

4.—Prothorax densely punctured, abdomen sparsely punctured, spurs of hind tibiæ obtuse; color variable; ♂ fourth ventral broadly sulcate, fifth impressed; ♀ front tarsi with long erect hairs; 7—11 mm.; Atlantic region to Col. and Mont.....8. **piezata** Fabr.

(*Type*).—Black, upper surface brownish yellow, elytra with a black stripe.

α.—Black, upper surface yellow.

β.—Yellow, antennæ, etc., tibiæ and tarsi dark; *texana* Lec.

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*This species is probably not different from *piezata* Fabr.; the prothorax seems somewhat variable in form.

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Prothorax quadrate sparsely punctured, elytra more densely punctulate; spurs of hind tibiæ more slender and acute; ♂ third, fourth and fifth ventrals more densely punctured, feebly impressed; ♀ abdomen sparsely punctured; front tarsi with long erect hairs; 7.5—11.5 mm.; Georgia.

9. **punctulata** Lec.

(*Type*).—Black, upper surface brownish-yellow, elytra with a black stripe.

a.—Pale yellow, antennæ black, tarsi dusky; *flavipennis* Uhler.

5.—Prothorax transverse, almost ovate, sparsely punctured, fulvous; under surface dull testaceous, sparsely punctured; head fulvous, antennæ, tibiæ, tarsi and elytra black; maxillæ two-thirds as long as the body; ♂ fourth and fifth ventrals broadly impressed and with median tufts of hair; sixth cleft to the base; ♀ front tarsi with erect hairs; 7—10 mm.; N. Mex.; Cala.....10. **nigripennis** Lec.

a.—Fulvous, antennæ, etc., knees, tibiæ and tarsi black.

Prothorax transversely oval, yellow, usually with two dark spots, abdomen sparsely punctured, sometimes testaceous, strongly not densely punctured, neck yellow, rest of the body black; maxillæ about one-half the length of the body; ♂ ventrals (except the first), impressed, and with median tufts of hair, sixth emarginate to the base; ♀ front tarsi with short erect hairs; 6.5—7.5 mm.; Middle, Southern and Western States.....11. **nemorensis** Hentz.

6.—Prothorax transversely suboval, not densely punctured, fulvous, elytra strongly not densely punctured, fulvous, with a wide black stripe, sometimes wanting, sometimes reduced to an apical blotch; rest of the body black, ventral segments sometimes testaceous; maxillæ as in *nemorensis*; ♂ fourth and fifth ventrals impressed, and with median tufts of black hair; ♀ front tarsi with short erect hair; 6.5—8.5 mm.; Middle and Western States to New Mexico.....12. **cribraria** Lec.

Prothorax transversely suboval, strongly and densely but not coarsely punctured; elytra similarly punctured; fulvous above, black beneath, front of head, scutel and margins of elytra black; maxillæ as in *nemorensis*; ♂ ventrals (except the first), impressed, and with median tufts of hair, sixth triangularly emarginate; ♀ front tarsi with ordinary pubescence; 5—8.5 mm.; Cala.; Utah.....13. **scutellaris** Lec.

** *Palpi longer and more slender, not hairy but only pubescent; mandibles more slender; maxillæ less than one-half the length of the body; spurs of hind tibiæ broad, obtuse; ♀ front tarsi pubescent, without erect hairs;* NEMOGNATHA gen.

Prothorax longer than wide, narrower in front, shining, not densely punctured.....2.

Prothorax wider than long, subquadrate, strongly and densely punctured...3.

2.—Elytra very sparsely and coarsely punctured, prothorax nearly smooth; color greenish-yellow, antennæ, knees, tarsi and tips of tibiæ black; ♂ ventral segments not impressed, sixth triangular, acutely cleft; 8—10 mm.; Ks.; Col.; N. Mex.*.....14. **immaculata** Say.

Elytra densely strongly punctured, prothorax nearly smooth, very sparsely punctured; ♂ as in *immaculata*; 9.5—14 mm.; Arizona.

15. **punctipennis** n. sp.

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*The head is obliquely and rapidly narrowed in front of the eyes, and the mandibles are much less curved than in the other species, thus making the mouth narrower and more acute.

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(*Type*).—Fulvous, antennæ, palpi, tips of mandibles and elytra black; knees and tarsi dusky.

a.—Like *type*, but first and second joints of antennæ, and entire margin of elytra yellow.

β.—Yellow, antennæ, tips of mandibles, palpi and tarsi more or less black.

Prothorax strongly not densely punctured; elytra strongly rather densely punctured; black, head, prothorax, scutel and thighs reddish-yellow; last ventral segments usually testaceous; ♂ fourth ventral slightly, fifth more strongly foveate, sixth triangularly emarginate; 5.5—6.5 mm.; Col.; N. Mex.....16. **sparsa** Lec.

3.—Fulvous, prothorax and elytra not coarsely, but densely punctured, antennæ (except at base), palpi, tips of mandibles, tibiæ and tarsi, black; ♂ fifth ventral with a short channel near the hind margin, sixth slightly but acutely emarginate; 8.8—11 mm.; Ill.; Mo.; Tex...17. **vittigera** Lec.

a.—Elytra with a broad black stripe.

Fulvous, prothorax very coarsely, elytra strongly and densely punctured; sides of prothorax rounded in front; antennæ, etc., and tarsi blackish; ♂ fifth ventral slightly impressed near the hind margin, sixth triangularly emarginate; 5—9 mm.; Southern and Western States; Texas.*

18. **cribricollis** Lec.

a.—Smaller, under surface in great part brownish; *porosa* Lec.

β.—Elytra brown, with fulvous border.

γ.—Elytra dark brown; *fuscipennis* Lec.

DIODYRHYNCHUS Sch.

I refer to this genus a pale colored insect from the Sierra Nevada, larger and stouter than our species of Rhinomacer, having like them simple claws, distinct labrum, and curved mandibles, not toothed on the outer margin. It differs however by the shorter palpi, and distinct epipleuræ, thus showing an affinity towards the Rhynchitidæ.

D. bytaroides.—Oblong-oval, rather elongate, convex, testaceous, finely pubescent. Beak as long as the prothorax, cylindrical, curved, strongly punctured, with two grooves and a fine medial carina, behind the antennæ which are inserted about the middle; cavities behind the antennæ broad, lateral; head convex, densely punctured, eyes rounded, slightly convex. Prothorax wider than long, narrower in front, where it is slightly constricted, front margin sinuate, elevated; sides strongly rounded, disc densely punctured. Elytra punctured like the prothorax, distinctly margined at the sides, entirely covering the pygidium. Under surface punctured, abdomen piceous, last segment testaceous. Legs stout, rather long. Length 4—5 mm.

♂.—Prothorax widest in front of the base, sides more rounded.

♀.—Prothorax widest at the base, sides less rounded.

Sierra Nevada, Cala.; collected by Mr. H. K. Morrison. No notes of its habits have been furnished to me.

* The muzzle is long in this species, and the last joint of the maxillary palpi is slightly dilated and elongate-triangular, thus forming an excellent transition to *Gnathium*.

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RHYNCHITES Herbst.

R. velatus.—Robust, densely clothed with prostrate coarse white pubescence; head behind the eyes brassy, elytra violet-coppery. Beak moderately stout, straight, as long as the head and prothorax, black, slightly flattened externally, strongly punctured, carinate at base, with a frontal puncture, eyes slightly convex; head slightly wider behind, punctured, hairy and black in front, transversely rugose, glabrous and brassy behind. Prothorax black, strongly punctured, narrowed in front, sides broadly rounded, base very oblique each side, obtusely rounded at the middle. Elytra violet-coppery, densely punctured, not striate, the striæ being represented only by rows of small distant black dots, from which proceed erect black stiff hairs. Pygidium exposed, punctured, hairy. Beneath brassy, finely punctured and densely pubescent. Legs black, densely pubescent, claws with a long acute tooth. Length 7 mm.

Sierra Nevada; collected by Mr. H. K. Morrison. The antennæ are black, inserted at the middle of the length of the beak, which is without lateral grooves or cavities behind the insertion of the antennæ.

ACALLES Sch.

A. Hubbardi.—Very robust, subpyriform, black, clothed with appressed scales; intermixed bristles so short as to be scarcely perceptible. Beak cylindrical, curved, without scales, shining, punctured, as long as the prothorax; head clothed with white scales, with a black deep median furrow. Prothorax a little wider than long, very much rounded on the sides, narrower at apex than base, and strongly constricted near the front margin; disc convex, cribrate, carinate at the middle, ornamented with several small dots each composed of a few white scales. Elytra ventricose, strongly and obliquely dilated behind the humeri, with an obtuse rounded angle; from this callus a short wide fascia extends inwards to the fourth stria where it unites with a small spot on the fourth interspace; there is a narrow undulated band of white scales at the second third of the length, and the declivity is mottled with small spots of white scales; at the base are some spots of velvety black scales; the striæ are deep, with large impressed foveæ, interspaces very convex. Legs in great part clothed with white scales. Mesosternum deeply semicircularly excavated. Length 7 mm.

Crescent City, Florida; found by Mr. Hubbard under Opuntia leaves. This species is quite distinct from any other known to me by the above characters, and is to be placed before *A. nobilis* in my synoptic table, (Rhynch. 240), with the following character: Scales appressed, without intermixed bristles. It is the species to which I have alluded in the remarks under *A. nobilis*, (p. 241).

EISONYX n. g. (Curculionidæ).

This genus belongs to the tribe Barini, and is related to *Microcholus* Lec., (Rhynch. 303), which it resembles in appearance. By the single claw it bears the same relation to that form as *Barilepton* does to *Centrinus*. The pygidium is visible in both specimens, but is, I think, abnormally protruded.

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Body rhomboidal-oval, broadest at the anterior third of the elytra, gradually and obliquely narrowed before and more regularly so behind, obtusely rounded at each end, very convex above. Beak cylindrical, stout, curved, somewhat shorter than the prothorax, separated from the head by a transverse impression; eyes flat, partially covered by the prothorax. Head convex; antennæ stout, club large, oval, pointed, annulated, entirely pubescent. Prothorax subcylindrical, rather longer than wide, sides rounded near the apex, front margin not lobed, deeply transversely impressed on the sides with a row of six or seven large foveæ marking the impression. Scutel extremely small, punctiform. Elytra connate, rounded at tip; pygidium exposed by protrusion only. Prosternum deeply impressed transversely in front, rather narrow between the front coxæ, which are somewhat prominent. Mesosternum not impressed; side pieces large. Metasternum as long as the first ventral segment, side pieces very narrow, not very distinct. Ventral segments, first and second closely connate, as long as the other three united. Legs stout; tibiæ thick, especially the middle and hind pair, which are nearly conical and coarsely pubescent; all are truncate at tip, with a fixed spur at the inner side; tarsi short, joints 1—2 as broad as long, densely pubescent beneath, third larger, bilobed, fourth slender, not clavate, as long as first and second united, with only a single rather long claw.

E. crassipes.—Rhomboidal-oval, elongate, black, without lustre, smooth, with a few scattered punctures as indicated, and sparse whitish scales; beak punctured; prothorax with a few scattered small punctures and a row of large foveæ in the anterior lateral constriction. Elytra with striæ indicated only by rows of very distant large punctures. Beneath nearly smooth, pro- and metasternum punctured and pubescent with coarse erect brown hairs; thighs sparsely, tibiæ more densely, coarsely punctured and pubescent. Length 5 mm.

Two specimens have been received by Dr. Horn from Texas, one of which he has generously placed in my collection.

There are now four genera of Curculionidæ in our fauna remarkable for having but a single claw, which do not otherwise resemble each other in appearance or affinities, viz.: *Brachybamus*, *Mononychus*, *Eisonyx* and *Barilepton*.

MICROCHOLUS Lec.

M. erasus.—Oval, very convex, narrowed at each end, robust black, somewhat shining, though not polished, smooth, beak slender, cylindrical, curved, longer than prothorax, sparsely punctured; head smooth, convex; prothorax at base wider than long, gradually narrowed in front, constricted near the tip; surface very sparsely and finely punctulate; elytra widest at the anterior third, striæ very fine, evanescent behind, deeper and excavated at base, where there are a few white coarse hairs. Beneath sparsely punctulate, with a few brown hairs, thighs sparsely punctured, tibiæ more densely punctured. Length 4 mm.

Topeka, Kansas; Prof. E. A. Popenoe, one specimen. The middle and hind tibiæ are rather stouter at tip than in the other three species, from which it is abundantly distinct by the prothorax narrower than the widest part of the elytra.

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BARILEPTON Lec.

B. lutescens.—Elongate, but less so than the other species, and having more the appearance of a *Centrinus*. Black, densely clothed above with dirty yellow small oval scales, which are denuded at the middle of the prothorax. Beak naked, cylindrical, curved, not as long as the prothorax, shining, sparsely punctured near the base; head globose, sparsely punctulate, separated from the beak by a transverse impression. Prothorax as wide as long, sides nearly parallel from the base for two-thirds the length, then obliquely rounded to the apex, not at all constricted on the sides; disc coarsely punctured. Elytra with deeply impressed striæ, and flat rugosely punctured interspaces. Beneath thinly pubescent, coarsely punctured; ventral segments shining, finely and sparsely punctured at the middle; metathoracic side pieces densely clothed with white scales. Tarsi very broad, piceous. Length 3.5 mm.

Columbus, Texas; E. A. Schwarz, one specimen.

B. albescens.—Elongate, of the same form as *lineare*, but much smaller. Black, clothed with yellowish white scales, round upon the prothorax, elongate-oval upon the elytra; denuded surfaces shining. Head and beak as above described in *lutescens*. Prothorax a little longer than wide, sides parallel for two-thirds the length, then obliquely narrowed to the tip; very slightly constricted at the sides near the tip; disc denuded at the middle, shining, sparsely punctured, with a smooth dorsal line. Elytra not wider than the base of the prothorax, striæ fine, well impressed, interspaces flat, smooth; the posterior callus and two submarginal spots are denuded, but this is probably not a constant character. Beneath sparsely pubescent and strongly punctured, ventral segments only sparsely and finely punctured at the middle, more densely pubescent at the sides. Length 2.5 mm.

Columbus, Texas; E. A. Schwarz, one specimen.

HIMATIUM Woll.

H. conicum.—Dull brown, without lustre, thinly pubescent with coarse erect yellowish hairs; elongate subconical, narrowed in front from behind the middle of the elytra. Beak entirely straight, cylindrical, punctured, hairy, as long as the prothorax, not separated from the head by a transverse impression, as in *H. errans*; eyes small, partially covered by postocular lobes. Prothorax longer than wide, gradually narrowed in front, sides nearly straight, except that they are suddenly incurved at the base; postocular lobes small, but distinct; surface punctured, without dorsal line; very slightly tubulate in front. Elytra truncate at base, slightly but gradually wider to behind the middle, then rounded to the tip; humeral angles distinct; striæ deep, almost sulcate, punctured, interspaces narrow, each with a row of yellow hairs. Beneath strongly punctured, front and middle coxæ widely separated; tibiæ short, scarcely longer than the tarsi, stout, with a large curved spine at the outer terminal angle. Length 1.6 mm.

Penington Gap, Va.; one specimen, H. S. Hubbard. This species is congeneric with *H. errans* Lec. (Rhynch. 427), but conspicuously distinct by the specific characters above given. *H. errans* has been collected at Tallahassee, Fla., by Mr. Schwarz, and also occurs in Pennsylvania.

I may here add that *Allomimus dubius* was found by Mr. Schwarz, in Texas, under the bark of the mustang grape vine.

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Synopsis of the SILPHIDÆ of the United States with reference to the genera of other countries.

BY GEORGE H. HORN, M. D.

In its origin the present essay was intended to clear up some doubtful points which appeared to exist in our series of Catops. This required an examination of the genera into which it (or more properly Choleva), had been divided, and necessitated a determination of the question of the generic identity of the European and American Adelops. The investigation gradually extended from one genus to another until all the tribes were covered and almost unwillingly the species were passed in review, and the paper has grown to a size far beyond my first ideas. The door once open to foreign genera all have been included in the study and will be found in their places in the generic tables which follow, and in the event of any now unknown to us being discovered, their recognition will be made easy without the bibliographical research otherwise necessary. In dealing with genera foreign to our fauna it has not seemed necessary to do more than put them in their places, more would not be pertinent to the present essay. Figures in outline of all known genera (with few exceptions) have been given, nearly all of which have been drawn from nature. These it is hoped will prove of further assistance.

As might have been expected from an investigation of such a character, the number of exceptional cases to the generally accepted formula of the family has greatly increased. In order to call especial attention to some of these the formula is here repeated, and the exceptions indicated in as condensed a manner as possible.

SILPHIDÆ.

MENTUM quadrate or slightly transverse, sometimes slightly emarginate, frequently with a transverse piece between it and the ligula which is prominent, either emarginate or bilobed; mental suture distinct.

MAXILLÆ with two lobes, inner sometimes with a terminal hook (*Silpha*), the outer rarely slender and filiform (*Clambus*). Palpi four-jointed, the first joint always short, the others variable.

LABRUM usually visible, rarely almost entirely concealed (*Clambini*), of variable form, sometimes entire, usually emarginate or bilobed.

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EYES oval or round, entire, usually finely granulated, coarsely in some Clambini.

ANTENNÆ variable in insertion, sometimes free at base (some Silphini and Cholevini), or under a frontal margin (Anisotomini), usually arising close to the eyes or distant from them (some *Silphæ* and in *Empelus* and *Calyptomerus*); usually eleven-jointed, rarely ten- or nine-jointed, the terminal joints either forming a club of variable structure, or gradually broader, rarely nearly filiform (*Pteroloma* and *Apatetica*).

PROTHORAX without distinct side pieces.

MESOSTERNUM short, side pieces closing the coxal cavities externally.

METASTERNUM usually large, truncate behind, short in the genera without eyes, side pieces distinct, the episterna long, epimera distinct, but in the Anisotomini partly concealed by the elytra.

ABDOMEN usually with six segments (seven in *Empelus*), rarely with five (*Sphærites*, *Lyrosoma*, *Colon*, *Clambus*), or even four (many females of *Colon*).

ANTERIOR COXÆ contiguous, conical, transverse at base and with trochantin, cylindric-conic and without trochantin in Cholevini; the coxal cavities strongly angulate externally (except Cholevini), and open behind in the first three tribes, closed in the others.

MIDDLE COXÆ not prominent, usually separated, rarely contiguous, oblique or transverse (*Clambus* and *Calyptomerus*), with distinct trochantin, the cavities closed externally by the mesosternal side pieces.

POSTERIOR COXÆ transverse, sometimes prominent internally (some Silphini), and in Clambini laminate, the plates more or less concealing the posterior legs.

LEGS often stout and fossorial or very slender; tibiæ usually with prominent terminal spurs which are rarely absent.

TARSI usually five-jointed, variable sexually or generically (Anisotomini, Cholevini), or four-jointed (Clambini).

ELYTRA usually entire, covering the abdomen, sometimes truncate (*Necrophorus*, some *Silpha*, *Sphærites* and *Apatetica*), epipleuræ distinct except in *Clambus* and *Calyptomerus*.

The above characters define, as far as it is possible in a general manner the present family, and the scheme seems principally noteworthy from the number of the exceptional cases, notwithstanding

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which the family seems to be as well defined an aggregate as very many of the families in the coleopterous series.

As constituted in the present essay the family differs in its composition from that at present given in the books. Lacordaire and Duval include *Leptinus*, the Catalogus (p. 741), adds *Sphærius*, and Leconte (Class. Col. N. A. pp. 48 and 52), adds *Brathinus* as a subfamily.

Regarding *Leptinus* I can only say that I fully agree with Leconte in separating it as a distinct family, and have nothing to add to the views expressed by him (Proc. Acad. 1866, p. 368), except that it seems more closely allied to this family than the Hydrophilidæ. I am not aware of any reason why *Sphærius* should be added and it seems that there are very many to the contrary, so that this does not seem to need discussion here.

The addition of *Brathinus* even as a subfamily introduces a very disturbing element to any system of classification, and after a careful examination I think the view originally expressed by Dr. Leconte (Proc. Acad. 1852, p. 150), is the correct one, and that the genus should take its place among the Scydmænidæ for the following reasons: The head is suddenly constricted behind to a neck which is gradually broader posteriorly, approaching the semiglobose form of *Scydmænus;* the anterior coxæ are as in that genus and similarly with trochantin, the middle coxæ slightly prominent and separated, the posterior prominent, slightly transverse at base but contiguous, the trochanters oval, rather flat and not in the axis of the thighs and the elytra have no epipleuræ. The greater length of the maxillary palpi and the form of the hind coxæ have been urged as objections to placing *Brathinus* in Scydmænidæ. If the palpar character has any weight (and it seems to me to have no greater than generic value), the preponderance is greater against the Silphidæ than the Scydmænidæ. The structure of the hind coxæ seems to me essentially that of the latter family, the apparently transverse character being due to their contiguity. The absence of epipleuræ seems to be general in the Scydmænidæ. In *Brathinus* it will be observed that the first four abdominal segments have on each side near the posterior edge a deep setigerous puncture. I have not been able to assure myself that this occurs in the Scydmænidæ. Finally the general appearance of *Brathinus* is rather that of *Scydmænus* than of any Silphide, and the comparison of it with *Leptodirus* seems singularly inappropriate.

Having thus disposed of the genera which seem foreign to the

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family the arrangement of the others is the next subject of discussion. Here it is usual to review the modifications of the various parts of the external skeleton, but as most of the exceptional cases have already been given and as it is far more convenient to amplify under the tribal headings, it seems unnecessary to repeat them here, reserving for the present such remarks as may be proper to explain the reasons for the rejection of the old systems of classification and to defend that here proposed.

The family originally indicated by Latreille was more restricted than at present, and to Schiœdte is due the suggestion of adding the Anisotomini which had been considered a distinct family by Erichson and Stephens. Lacordaire divides the genera into three tribes in the following manner:

Posterior coxæ distant.....*Leptoderides.*
Posterior coxæ contiguous.
Posterior trochanters prominent.....*Silphides.*
Posterior trochanters placed in the axis of the thighs.....*Anisotomides.*

Duval follows several years after with nearly the same system, separating the Clambites as a distinct tribe by the coxal plates.

The separation of Leptodirus in a distinct tribe by the distant posterior coxæ is certainly a very great exaggeration, and the character must be assigned rather a secondary rank in view of the fact that all the blind genera and Lyrosoma are so constructed. It is true that Pholeuon and Oryotus were unknown to the above authors or they would probably have seen the relationship existing between the three, as Schaufuss (Stettin Zeitsch. 1861, p. 424), did a few years after, although he appears to have overlooked entirely their resemblance to the Cholevini.

The value of the hind trochanters in separating the other two tribes is entirely illusory, in fact the character as made use of does not exist, and it seems to me remarkable that characters once suggested and gaining currency will often pass unquestioned, and be repeated from author to author until they become so fixed in the books that it is nearly impossible to free ourselves from them. Without desiring to cite numerous examples in proof of the assertion, the attention of students is invited to the trochanters themselves.

The next system of classification is that proposed by C. G. Thomson, (Skand. Col.). Here appears the first serious innovation and the first suggestions toward a rational arrangement. He recognizes fully the value of the structure of the anterior coxal cavities as a means toward that end, and it is to be regretted that the limited fauna of his country

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did not allow him to enter fully into the discussion of the subject. As it is the isolated character of his material has led him to make too many divisions and genera, a pardonable mistake for that reason. I cannot allow the present occasion to pass without special mention of C. G. Thomson's work. It is filled with important discoveries, new ideas and useful hints applicable to larger fields of study, and I am unable to understand why he appears to be so little appreciated by his European cotemporaries. With us it is usual before undertaking any work in which he has studied similar genera to refer to his book to avoid unnecessary labor, as it has more than once occurred to me to find characters already known to him which I had obtained after long and patient search.

The value of the coxal structure as a means of separating the family into tribes has already been intimated, and the following table is offered for the consideration of students.

Posterior coxæ simple.
  Anterior coxæ more or less transverse at base and with trochantin.
    Anterior coxal cavities open behind.
      Posterior coxæ contiguous.....SILPHINI.
      Posterior coxæ separated.
        Anterior coxæ prominent. Abdomen with five segments...LYROSOMINI.
        Anterior coxæ not prominent. Abdomen with six segments...PINODYTINI.
    Anterior coxal cavities closed behind.....ANISOTOMINI.
  Anterior coxæ cylindric-conic, without trochantin, the cavities closed behind often widely.....CHOLEVINI.
Posterior coxæ laminate.
  Anterior coxæ with trochantin, the cavities closed behind.....CLAMBINI.

These characters are so easily expressed in words as to need no further comment, and under the descriptive remarks will be found comments on the various lines of affinity existing between the tribes.

In the tables of the genera of the various tribes will be found not only our own genera but all those described up to the present time, which are placed in position from an examination of the genera in nature with few exceptions.

For the types of many European genera I am indebted to M. Aug. Sallé of Paris, and Dr. Dohrn of Stettin. For the material for the elucidation of our own fauna outside of my own cabinet, I am indebted to Dr. Leconte, and Mr. Ulke of Washington, both of whom have allowed unrestricted use of their material. Nearly all the species described by Mannerheim, from Alaska, have been seen and described here from types sent by Mannerheim or Chaudoir to Dr. Leconte.

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Before proceeding to the consideration of the tribes the following remarks on the geographical distribution of the genera may be of interest.

There are 43 genera recognized in the following pages distributed in the tribes as follows:

Silphini	8	of which	there	are new	1.
Lyrosomini	1	"	"	"	0.
Pinodytini	1	"	"	"	1.
Cholevini	16	"	"	"	2.
Anisotomini	14	"	"	"	1.
Clambini	3	"	"	"	0.

In the second tribe Lyrosoma has been revived from its improper suppression in Pteroloma. In the fourth tribe I have suggested the suppression of Drimeotus in Pholeuon, Catopomorphus in Ptomaphagus, Quæsticulus and Quæstus in Bathyscia; the last three had been suppressed in Adelops. With these explanations a concordance is established with the Catalogus, excluding Leptinus and Sphærius from the family. In addition to the new genera of the present paper six others have been published since the Catalogus.

Of the above genera

North America has represented	30.
Peculiar to North America	10.
Europe has represented	27.
Peculiar to Europe	10.
Common to Europe and North America	18.
Common to Alaska and Kamtschatka (*Lyrosoma*)	1.
Peculiar to India (*Apatetica*)	1.
Peculiar to New Zealand (*Camirus*)	1.
Peculiar to Madeira (*Stereus*)	1.
Peculiar to Brazil (*Scotocryptus*)	1.

By the above scheme it will be observed that the genera with four exceptions belong to Europe and North America, that each has nearly an equal number represented and with the same ratio of those peculiar to it.

The number of species described from Europe nearly doubles that from our own fauna.

Tribe I.—*Silphini.*

Anterior coxæ conical, prominent, contiguous, with large trochantin, the cavities strongly angulate externally and open behind, very widely in *Necrophorus* and *Silpha* and partially closed in the other genera. Middle coxæ widely separated in these two genera, narrowly separated or even contiguous in the others. Posterior coxæ contiguous. Abdomen with six segments except in *Sphærites*. Antennæ variably inserted, sometimes free at base or under a slight frontal margin.

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The head is always free or nearly so and usually constricted behind into a neck. The antennæ are eleven-jointed in all except *Necrophorus* in which the true second joint is connate with the base of the third. The terminal four or five joints are usually thicker forming a club, abrupt and compact in *Sphærites*, abrupt but with mobile joints in *Necrophorus*, or elongate-oval and gradually formed in *Silpha*, etc. *Pteroloma* and *Apatetica* have slender antennæ, scarcely at all thickened externally. The eyes are at least of moderate size and often prominent, never absent. The thorax is variable. The elytra are distinctly margined at the sides, sometimes widely, the inflexed portion below the margin variable in width. This part is often erroneously called the epipleuron, it is more properly the epipleural fold, the epipleuræ proper being narrow portions along the extreme edge of the elytra. The abdomen is visible beyond the elytra in *Necrophorus*, *Sphærites*, *Apatetica*, and nearly all the species of *Silpha*, but entirely concealed in the other genera, the number of segments being six in all except *Sphærites* where there are but five. The legs are decidedly fossorial in *Necrophorus* alone, in the other genera rather slender. The tibiæ are nearly always spinulose externally, very indistinctly however in several genera. The tibial spurs are at least of moderate size. The anterior tarsi more or less dilated in the male.

This tribe contains all the large species of the family and none that are very small, its distinctive characters being the open anterior and the contiguous posterior coxæ. The next two tribes have the first of these characters but the hind coxæ are separated.

The genera here included seem quite homogeneous and form a natural series except as to *Sphærites*, which is somewhat aberrant by the abdomen and the compact antennal club. It seems however a link toward the Histeride series, while *Necrophorus* shows decided Staphylinide affinities.

Through *Pteroloma* and *Lyrosoma* as a further intermediate the tribe connects with the Cholevini, and by *Agyrtes* through *Pinodytes* with the Anisotomini.

Some authors have divided the tribe still further and have instituted tribes or families (Thomson), for *Sphærites* and *Agyrtes*. I can see no special advantage in such a course as the tribal distinctions must then be brought almost to a generic basis.

The following table gives in brief the important characters separating the genera.

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Antennæ 10-jointed, capitate, the last four joints forming an abrupt club. Middle coxæ widely separated. Anterior coxæ widely open behind without post-coxal extension of the prothoracic epimera. (Pl. V, fig. 2.).....**Necrophorus.**

Antennæ 11-jointed, either slender or gradually clavate.

Middle coxæ moderately separated. Anterior coxæ widely open behind without post-coxal process of prothoracic epimera. (Pl. V, fig. 4 a.).
Silpha.

Middle coxæ narrowly separated or contiguous. Anterior coxæ narrowly open, partially closed by a prolongation of the prothoracic epimera. (Pl. V, fig. 6 a.).

Epipleural fold wide, the elytra margined at the sides. Last joint of maxillary palpi slender.

Antennæ gradually clavate, not longer than the head and thorax.

Antennæ free at base, not inserted under a frontal margin, first and and third joints long, the latter as long as the next two.
Necrophilus.

Antennæ arising under a frontal margin, first joint short, robust, third scarcely longer than the second.....**Pelates.**

Antennæ slender, scarcely thicker externally, as long as half the body.

Elytra entire; penultimate tarsal joint simple.....**Pteroloma.**

Elytra truncate; penultimate joint bilobed.....**Apatetica.**

Epipleural fold narrow, the elytra with an extremely narrow margin. Last joint of maxillary palpi ovate.....**Agyrtes.**

Antennæ 11-jointed, capitate, the last three forming an abrupt club. Anterior coxal cavities narrowly open behind, partially closed by a slender prolongation of the epimera.

Abdomen with five segments. Elytra truncate.....**Sphærites.**

Of the above genera *Apatetica* does not belong to our fauna, while *Pelates* is thus far peculiar to it. *Necrophorus* and *Silpha* are widely distributed, *Necrophilus* has one species on each side of the continent, the other genera occur on the Pacific coast alone.

NECROPHORUS Fab.

Head large, suddenly narrowed in front of the eyes and also at a little distance behind them. Eyes large, oblique, moderately prominent. Labrum transverse, deeply bilobed. Clypeus rhomboidal, separated from the front by a fine suture and with a membranous rhinarium of variable size and shape. Antennæ free at base, geniculated, apparently ten-jointed, terminated by an abrupt four-jointed club, the first joint of which is glabrous, scape elongate gradually clavate very nearly as long as the five following joints, second joint longer than any of the following, joints 3—6 gradually shorter and broader; the second and third joints of the club emarginate in front the last elevated in an obtuse carina. Palpi short, the last joint cylindrical slightly acuminate at tip, the penultimate obconical and stouter. Anterior coxæ conical, prominent and contiguous with large trochantin, the cavities strongly angulate externally and widely open behind, the post-coxal portion of the epimera short, broad and obtuse. Middle coxæ widely separated. Posterior coxæ prominent, contiguous. Legs of moderate length, stout, the tibiæ broader at tip each with two spurs of moderate length, the outer edge spinulose. Tarsi slender the

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anterior dilated in the males and fimbriate at the sides. Thorax truncate in front, sides more or less margined. Elytra with distinct marginal line and with an epipleural fold of variable width usually wide, rarely narrow (*carolinus*). Metasternum moderately long, body winged. Abdomen of six distinct segments.

The head exhibits some variation in form within specific limits; that is, while the eyes in some individuals are very close to the hind angle of the head, in others the head is notably prolonged behind them. This is neither sexual nor specific.

The antennæ are always spoken of as ten-jointed but the true second joint appears as a node at the base of the one usually called the second. There is no variation in the form of joints 3—6 worthy of special mention. The club is slightly variable in the degree of the emargination of the second and third joints, so that the first and fourth joints meet when the club is closed in some species in others not. This character does not seem of any further value.

The clypeus is separated from the front by a fine suture and its anterior portion is membranous and may be orange-red or piceous, this portion is called the *rhinarium* and varies in size and shape but not sufficiently for use in the separation of the species.

The form of the thorax plays an important part in arranging the species in natural groups and requires special mention.

The first form or that which is most unlike all the others is that of *carolinus*. Here the thorax is oval not wider than long, narrowed behind, the lateral margin extremely narrow, the disc (for this genus), very convex and without any trace of the anterior sinuous impressed line. The punctuation is also peculiar. This form is called "oboval, not margined."

The second form is that represented by *americanus*, *orbicollis* and *Sayi*, in which the thorax is orbicular, truncate in front the sides arcuate and rather broadly margined. These species are moreover peculiar in having the elytra more oval and when we view the species from the side there seems to be a very distinct transverse depression of the elytra behind the base. The last two species above mentioned have erect hairs on the elytra. This form of thorax is called "orbicular."

The next form of thorax is that of *marginatus*, *obscurus* and *guttula*, called in the following pages "transversely cordate." The thorax is broader than long, the sides very narrowly margined and at middle sinuate. The anterior sinuous impression of the thorax is well marked.

The form in *pustulatus*, *vespilloides* and *tomentosus*, is called "trans-

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versely oval," and resembles the orbiculate form but is shorter and the sides at middle are either straight or slightly sinuate, the anterior sinuous impression is usually deep and the disc of the thorax less convex. The last named species is peculiar in having the thorax densely clothed with yellow silken pubescence.

The elytra present but little that is peculiar except that mentioned above. The sculpture is very little variable but the color very much so in several species. The elytra have at the sides a marginal line very distinct in all the species except *carolinus*. The part below this line is called in the subsequent pages the "epipleural fold," and is spoken of by most authors as the epipleuron but such is not the case, the epipleuræ being extremely narrow pieces along the extreme edge of the elytra. The marginal line varies in length in the species, in some reaching from the outer apical angle nearly to the humeral umbone, in others but half that length. The epipleural fold is narrow in *carolinus*, wide in the other species.

The tibiæ vary also, the posterior pair being distinctly arcuate in *carolinus*, *marginatus*, *obscurus*, *orbicollis*, *americanus* and *Sayi*, while the last two have the middle tibiæ also curved. There has always seemed to be great trouble in properly defining the limits of species, and the numerous synonyms show how far separation has been pushed on a color basis alone. Those which have no other claim to separation their differences of color have been rejected and structural characters taken as the basis of separation. Two species acknowledged in the following pages are still doubtful in my mind but they are retained as distinct for reasons given.

The following are the species recognized in the subsequent pages:

Group 1.—Thorax oboval, extremely narrowly margined, disc very unequally punctured, without anterior sinuous line.....**carolinus** Linn.

Group 2.—Thorax orbicular, sides and base with wide flattened margin, disc equally punctulate, sinuous line usually distinct.

Elytra without erect hairs, disc of thorax red.

Middle and posterior tibiæ arcuate.....**americanus** Oliv.

Elytra with erect hairs, disc of thorax black.

Middle and posterior tibiæ arcuate.....**Sayi** Lap.

Tibiæ not arcuate.....**orbicollis** Say.

Group 3.—Thorax transversely cordate, sides narrowly margined and sinuate at middle, anterior sinuous line distinct.

Posterior tibiæ arcuate. Disc of thorax nearly smooth.

First joint of club red.....**marginatus** Fab.

First joint of club piceous.....**obscurus** Kby.

Posterior tibiæ straight. Disc of thorax punctate.

Antennal club and color of elytra very variable...**guttula** Motsch.

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Group 4.—Thorax transversely oval, very little narrowed behind, sides and base broadly margined, the sides usually feebly arcuate or even slightly sinuate, anterior sinuous impression distinct. Tibiæ straight.

Disc of thorax glabrous.

Antennal club orange, first joint piceous.....**pustulatus** Hersch.

Antennal club black.. .....**vespilloides** Hbst.

Disc of thorax densely pubescent.

Antennal club piceous.....**tomentosus** Weber.

As our species are so few in number it has not been deemed necessary to reduce them to any tabular arrangement. To those who desire to make such a table the form of the tibiæ whether curved or straight will form a convenient point of departure.

N. carolinus Linn.—Form moderately elongate, head and thorax in repose rather strongly deflexed. Head black, shining, rather coarsely punctured, the lateral impressions moderately deep, rhinarium triangular, piceous. Antennæ black, the club entirely orange-red. Thorax oval as long as wide, narrowed behind, anterior angles broadly rounded, sides behind the middle slightly sinuate, base broadly arcuate, sides very narrowly margined, base more broadly, disc convex and without transverse impression, surface densely punctured in its apical third, more coarsely but less densely along the sides and base, the remainder of the disc shining and very sparsely punctate. Scutellum slightly convex posteriorly. Elytra not wider than the thorax and very little longer than wide, sides feebly divergent to the outer apical angle, apex squarely truncate, lateral marginal line very feebly elevated, the epipleural fold narrow, surface feebly shining, sparsely punctate and slightly wrinkled, color black, each elytron with small subhumeral spot, a subbasal fascia broadly interrupted at middle attaining the lateral margin and joining the humeral spot by a narrow line, near the apex a reniform spot which does not reach either the margin or suture. Abdomen above subopaque, sparsely punctate. Body beneath black, shining, metasternum with short yellowish hair. Middle and posterior tibiæ slender at base, rapidly broader toward the apex, the posterior arcuate in both sexes. The outer spur of the anterior tibiæ much stouter than the inner in both sexes. Length .80—1.12 inch; 20—28 mm. (Pl. V, fig. 1).

The male has the anterior tarsi dilated and the posterior femora stouter than in the female. The hind trochanter is prolonged in a short acute spine in both sexes.

This species is one of the most peculiar in our fauna. It seems to have shorter legs than the others, while the lateral marginal line of the elytra is scarcely prominent and the inflexed portion very narrow. Its markings are almost invariable.

Occurs in the Gulf States.

N. americanus Oliv.—Form robust, black, vertex, disc of thorax, two elytral fasciæ and epipleural fold, orange-red. Head almost impunctate, lateral impressions moderately deep enclosing the large orange-red space, rhinarium red. Antennæ black, club entirely orange-red. Thorax orbicular, truncate in front, wider than long, sides and base with a broad deplanate margin, disc

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convex with scarcely a trace of the anterior sinuous line, surface smooth, a few scattered punctures at the margin only, color orange-red, the flat margin black. Scutellum flat. Elytra as wide as the thorax, about one-half longer than wide, sides slightly arcuate, broadest a little behind the middle, then a little narrower to apex which is sinuately truncate, lateral margin acute, moderately prominent, epipleural fold wide, disc broadly transversely impressed behind the scutellum, then a little more convex and slightly declivous to apex, surface sparsely indistinctly punctate; color black, epipleural fold entirely red, a post-humeral broad red fascia interrupted at the suture and an apical fascia consisting on each elytron of three confluent spots. Abdomen above sparsely punctate, moderately shining. Body beneath black, shining, metasternum with short yellowish hairs. The middle and posterior tibiæ are gradually dilated to tip and slightly arcuate. The spurs of the anterior tibiæ are nearly equal, the outer apical angle is however prolonged. Length 1.08—1.40 inch; 27—35 mm.

The males have the anterior tarsi broadly dilated and the posterior femora stout. The posterior trochanters are spiniform in both sexes.

The color of the head and thorax serve to distinguish this species. By the form of its thorax it is allied to *Sayi* and *orbicollis*. The elytral markings are nearly constant, showing but little variation.

Widely distributed in the Atlantic region from the Middle States to Texas.

N. orbicollis Say.—Form moderately robust, black, shining, elytra with two incomplete fasciæ and short erect hairs. Head smooth, shining, sparsely finely punctate, lateral impressions moderately deep, rhinarium orange-red. Antennæ piceous, club orange-red with the first joint black. Thorax orbicular, wider than long, apex truncate, sides and base nearly equally widely margined, disc convex, median line and anterior sinuous impression moderately deep, the flattened margin coarsely punctate and with a few erect hairs, the disc sparsely minutely punctulate. Scutellum flat, moderately densely punctured. Elytra not wider at base than the thorax, sides arcuate and gradually broader behind the middle then slightly narrowed to apex which is sinuately truncate, disc with vague transverse depression behind the scutellum then the surface is slightly more convex and declivous to tip, surface shining, sparsely punctate and with two vague costæ and with erect brownish hairs arising from each puncture; marginal line moderately prominent, epipleural fold moderately wide; color of elytra piceous black, with the post-humeral fascia broadly interrupted by the suture and a subapical transversely oval spot orange-red, epipleural fold piceous or black. Abdomen above sparsely punctate. Body beneath sparsely punctate, metasternum with brownish yellow hairs. Middle and posterior tibiæ in both sexes gradually broader to tip and straight. Anterior tibiæ with equal spurs, the outer apical angle slightly prolonged. Length .80—1.00 inch; 20—25 mm.

The anterior tarsi of the male are rather broadly dilated. The hind trochanters are prolonged in both sexes. The posterior tibiæ are much stouter in the male.

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As in *americanus* and *Sayi* this species has the vague transverse impression of the elytra, and it further agrees with the latter in the presence of erect elytral hairs. From both these it differs in the straight tibiæ.

Widely distributed in the Atlantic region from Hudson's Bay southward.

N. Sayi Lap.—This species agrees in all the general characters of *orbicollis* except that the sides of the thorax are less arcuate, the epipleural fold of the elytra entirely orange-red and the middle and posterior tibiæ arcuate in both sexes. It is also generally smaller. Length .60—.80 inch; 15—20 mm.

Occurs in the northern part of the Atlantic region.

N. marginatus Fab.—Moderately elongate, black, elytra bifasciate with orange-red, epipleural fold red. Head minutely sparsely punctulate, lateral impressions moderate, rhinarium large red. Antennæ piceous, club entirely red. Thorax subcordate, broader than long, apex truncate, sides very narrowly margined, sinuate near the base, base arcuate, more broadly margined, margin punctured, disc convex very sparsely punctulate, median line obliterated, anterior transverse impression nearly so. Scutellum flat, sparsely punctate. Elytra not wider than the thorax, gradually wider from base toward apex, sides nearly straight, apex sinuately truncate, surface sparsely punctate and with feeble traces of two discal costæ; epipleural fold orange-red, disc with a rather broad, dentate, post-basal fascia usually entire, rarely divided at the suture, a second subapical often reaching the apical margin. Abdomen above and beneath sparsely punctate. Metasternum sparsely clothed with brownish pubescence. Anterior tibiæ with equal spurs, the outer apical angle moderately prolonged. Middle and hind tibiæ stout at tip, the posterior alone distinctly arcuate. Length .73—1.08 inch; 18—27 mm.

The males have the anterior tarsi dilated as usual and in both sexes the posterior trochanters are moderately prolonged, and the posterior tibiæ slightly pubescent on the inner edge.

The elytral markings vary a little in the width of the orange-red fasciæ, there are however no striking variations. The hind tibiæ being distinctly arcuate the relationship of this species is easily defined, and by the exclusion of *carolinus*, *americanus* and *Sayi*, by their peculiarities in other parts of the body we have *obscurus* alone with which it might be confounded.

Widely distributed, I have seen specimens from almost every part of our country, Pacific and Atlantic.

N. obscurus Kirby.—Closely allied to *marginatus* in form, color and markings, and differing as follows: Antennæ black, club red with the first joint black. Thorax with median line finely impressed, anterior transverse impression well marked. Posterior tibiæ very distinctly pubescent on the inner edge. Length 1.00 inch; 25 mm.

The only constant character is that found in the club of the

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antenna, and it seems doubtful if this is sufficient to separate this and the preceding.

Occurs from Hudson's Bay to Canada and Utah.

N. guttula Motsch.—Form moderately elongate, black, elytra variable in color. Head rather coarsely punctured, lateral impressions moderately deep, rhinarium piceous. Antennæ black, the club orange-red with the first joint either piceous (*guttula*) or red (*Hecate*). Thorax transversely cordate, broader than long, apex truncate, sides sinuate posteriorly, base arcuate, margin narrow at the sides, a little wider at base, disc convex with the anterior transverse line deeply and the median line feebly impressed, surface moderately coarsely punctate but somewhat variable. Scutellum flat, moderately densely punctate. Elytra a little narrower at base than the thorax, gradually wider posteriorly, sides straight, apex sinuately truncate, surface moderately coarsely punctate with a few coarser punctures intermixed which in some specimens show a tendency to assume a seriate arrangement; color of surface very variable. Abdomen above and beneath moderately densely punctulate. Metasternum clothed with yellow silken hairs. Anterior tibiæ with nearly equal spurs, the outer apical angle slightly prolonged. Middle and posterior tibiæ gradually broader to tip, not arcuate. Length .52—.80 inch; 13—20 mm.

The color of the elytra is extremely variable in this species. In the typical form (*guttula*) the elytra are entirely black excepting a small subhumeral red spot. In these also the first joint of the club is piceous. A variety of this form occurs with a small red spot on the elytra posteriorly.

In the variety *Hecate* the elytra are fasciate after the style of *marginatus*, with the epipleuræ pale and the antennal club entirely red. The fasciæ are not constant in their width but become wide so as to be more or less confluent, so that in a specimen taken by me in company with the normal *guttula* the elytra have very little black on them.

The thorax varies in punctuation, being generally more coarsely punctured in the entirely black forms and more finely in the fasciate.

By the narrow side margin of its thorax this species must be associated with *marginatus*, from which it may always be distinguished by its straight tibiæ.

Occurs from Colorado to California, as far south as San Diego. It illustrates the tendency to melanism shown by many other species which extend from the Plains to California, and it may be here observed that the fauna of California often replaces a colored eastern species by one entirely black.

N. pustulatus Herschel.—Form moderately robust, piceous or black, elytra variable in color. Head sparsely finely punctate, rhinarium small, red. Antennæ piceous, club red with the first joint black. Thorax transversely oval,

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very little narrowed posteriorly, sides very slightly sinuate at middle, base subtruncate at middle, sides and base rather widely margined, disc moderately convex, anterior impression deep, median line fine, surface minutely punctate margin more coarsely. Scutellum densely punctulate at base. Elytra nearly as wide at the base as the thorax, slightly broader posteriorly with very feebly arcuate sides, apex sinuately truncate, surface somewhat variably but usually coarsely punctured and with two faint costæ and a few coarser punctures forming indistinct series. Abdomen above and beneath very sparsely punctate. Metasternum with brownish pubescence. The outer apical angle of the anterior tibiæ is moderately prolonged, the spurs are a little unequal, the outer larger. The middle and posterior tibiæ are gradually stouter to tip and straight. Length .80—1.00 inch; 20—25 mm.

This species exhibits a range of color variation of the elytra greater than any other species known to me.

N. nigrita Mann.—This form is entirely black and less shining than the others. The antennal club is red except the first joint.

Its distribution is from the middle of California southward to the Peninsula and Guadeloupe Island, thence eastward through Arizona to Texas.

N. pustulatus Herschel.—Here the elytra are black excepting a red spot of variable size at the side of the elytra at the usual position of the first band, and two spots posteriorly near the apical margin of variable size. The epipleural fold is black. This form is usually a little more coarsely punctured than the preceding. *N. tardus* Mann., is a synonym of this variety.

This form is the one occurring more especially in the Atlantic region from the New England States to Texas, where we find entirely black forms resembling *nigrita* in color and *pustulatus* in sculpture. It occurs also in Alaska.

N. Melsheimeri Kby.—Under this head are included those forms in which the epipleural fold is red, either entirely or in very great part. The variety most nearly approaching *pustulatus* has in addition the lateral spot of the latter species, while the small subapical spots are united in a narrow fascia. With this as a starting point we have the lateral spot extending forming a band of varying width and finally reaching the suture. The posterior band also becomes gradually wider so that we have forms in which the elytra are almost entirely red as in *guttula*.

This variety occurs from Colorado northward to the Hudson's Bay region and Alaska, thence southward through Oregon and the north of California.

In this species the series of variations in the color of the elytra

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may be made very complete, there being no link wanting either in this respect or in geographical distribution.

Occurs over the entire Continent north of Mexico.

N. vespilloides Herbst.—This species although quite distinct from the preceding presents but little that can be used in description to distinguish it. The only permanent character is the entirely black antennal club. It is always smaller and the surface much less sculptured. There are the same color varieties as in *pustulatus*, but I have never yet seen specimens entirely black or with entirely yellow side margin. Length .44—.60 inch; 11—15 mm.

Occurs in Canada, and from thence westward to Oregon and Washington Territory and north to Alaska, also in northern Europe.

N. tomentosus Weber.—Moderately elongate, black, shining, elytra with two fasciæ and epipleural fold orange-red. Head shining, minutely punctulate, rhinarium large, red. Antennæ piceous, club black. Thorax broader than long, transversely cordiform, apex truncate, sides at middle slightly sinuate, base feebly arcuate, margin moderately wide, broader at the base, disc convex, surface punctate and moderately densely clothed with golden yellow hair. Scutellum flat, sparsely punctate. Elytra scarcely wider than the thorax, sides nearly straight and slightly divergent posteriorly, marginal line distinct but not prominent, apex sinuate truncate, epipleural fold wide, surface rather coarsely but not densely punctate and with two faint discal costæ; color piceous or black with two orange-red fasciæ, the post-humeral and sub-apical extending from the epipleural fold to the suture and rarely interrupted. Abdomen above densely punctured, beneath very sparsely punctulate. Metasternum clothed with golden yellow pubescence. Middle and posterior tibiæ gradually broader to tip, straight. Anterior tibiæ with equal spurs, the outer apical angle prolonged. Length .56—.80 inch; 14—20 mm.

The anterior tarsi of the male are broadly dilated. The posterior trochanters are not much prolonged in either sex.

Widely distributed over the Atlantic region.

SILPHA Linn.

Head moderate in size, suddenly narrowed in front of the eyes except in *opaca* and *bituberosa* and somewhat narrowed behind except in these. Eyes oval, slightly oblique, not prominent except in *surinamensis*. Labrum transverse, variably emarginate. Antennæ free at base, inserted close to the anterior margin of the eye and distant from the frontal margin except in *opaca* and *bituberosa*, eleven-jointed, not geniculate, the last four or five forming an oblong club either loose or moderately compact. Palpi short, the last joint cylindrical obtuse at tip. Anterior coxæ conical, prominent, contiguous and with large trochantin, the cavities strongly angulate externally and widely open behind, the post-coxal portion of the epimera short and broad. Middle coxæ separated, widely in all the species except *opaca* and *bituberosa*. Posterior coxæ contiguous not very prominent. Legs moderate in length, the tibiæ slender, gradually broader to tip and spinulose externally. Anterior tarsi more or less dilated in the males. Thorax usually emarginate in front. Elytra margined, the margin more or less reflexed, the epipleural fold moderately wide more or less concave. Body winged, abdomen with six segments.

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The head shows but little variation except that noted above. In all the species except *opaca* and *bituberosa* the eyes form the most prominent part of the sides of the head, but in these the head is slightly prolonged behind the eye and a little more prominent than it. In these also the muzzle is much shorter, and the antennæ are inserted close to the frontal margin and more distant from the eyes than in the others.

The antennæ are eleven-jointed and never elongate, the club is composed of four or five joints but in some species is so gradually formed as to make it difficult to determine whether it has the one or other number. The terminal joint of the club is flattened, oval at tip, but in *opaca* and *bituberosa* somewhat conical.

The thorax is variable in shape but is usually transverse, rarely orbicular (*surinamensis*), the apex emarginate more or less distinctly except in the two species above where it is truncate.

The elytra are costate in a variable degree in all except *truncata*, the lateral margin reflexed, the apex is variable, squarely truncate only in *truncata*.

The legs present but little of note other than some sexual variation which is given under the species.

The anterior tarsi of the male and in some species the middle also are dilated, while in some the dilatation is very feeble.

After a careful study of our species I can see no valid reason for adopting any of the genera into which the present has been divided. To those who desire to know more of these genera the more general works will give the desired information, and of these none is more worthy of attention than C. G. Thomson's Skandinaviens Coleoptera, a work on a small fauna, full of useful suggestions and giving evidence of careful and patient research.

The visibility of the prothoracic stigmata has been urged as a reason for the adoption of *Necrodes* as a valid genus, but as Lacordaire correctly remarks *S. americana* has the stigmate equally visible. From my observations on our species I am convinced that the visibility of the stigmate is merely an accident depending on the size and extent of the prothoracic epimeron, and the stigmate may be seen in any species in which the thorax is slightly bent upward so as to render the connecting membrane a little terse. I can see no reason for attaching any value to this character. It must be admitted that many of the characters separating the species of Silpha are such as might elsewhere be deemed of generic value, but from the stand-

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point of our fauna I can see no reason for admitting any other genus than Silpha.

Our species may be distinguished by the characters of the following table:

A.—Antennæ inserted close to the eyes and distant from the margin of the front. Middle coxæ widely separated.

Eyes large, prominent, posterior femora much stouter in the males. **surinamensis** Fab.

Eyes not prominent, posterior femora similar in the sexes.

Labrum broadly emarginate; third joint of antennæ as long or longer than the second.

Elytra squarely truncate, similar in the sexes, surface not costate. **truncata** Say.

Elytra sinuate or oblique at tip, more prolonged in the female, surface distinctly costate.

Thorax emarginate at middle of base, surface pubescent, posterior tibiæ of males straight.

Intervals of elytral costæ tuberculate..... **lapponica** Herbst.

Intervals of costæ flat..... **trituberculata** Kby.

Thorax arcuate or truncate at middle of base, surface not pubescent, posterior tibiæ male arcuate.

Thorax entirely black..... **inæqualis** Fab.

Thorax bicolored..... **noveboracensis** Forst.

Labrum deeply emarginate, third joint of antennæ shorter than second, elytra with costæ often feeble the intervals with anastomosing lines.

Form broadly oval, thorax reddish-yellow with discal black space. **americana** Linn.

Form oblong-oval, color above entirely black often with bronze surface lustre..... **ramosa** Say.

B.—Antennæ inserted close to the margin of the front and more distant from the eyes. Middle coxæ rather narrowly separated. Posterior tibiæ of males unguiculate at tip. Labrum deeply emarginate.

Form elongate-oval, (as in *trituberculata*)..... **opaca** Linn.

Form oval, (as in *ramosa*)..... **bituberosa** Lec.

It may be here remarked that all our species occur in the region east of the Rocky Mountains. The Pacific coast has not yet furnished a species peculiar to it.

S. surinamensis Fab.—Form moderately elongate, depressed, piceous, elytra with subapical, narrow orange-red fascia often broken in spots sometimes wanting entirely. Head elongate-oval, sparsely finely punctulate, suddenly constricted behind the eyes and with a deep transverse occipital impression. Labrum broadly emarginate. Eyes large, oval, prominent. Antennæ with an elongated club of five loosely articulated joints, the last three pubescent. Thorax transversely oval, emarginate in front, sides and base regularly arcuate, margin broadly flattened posteriorly, surface sparsely finely punctulate, at the sides and base more coarsely. Elytra as wide at base as the thorax, sides feebly arcuate and gradually broader posteriorly, apex obliquely truncate, more pro-

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longed in the female, lateral margin acute, narrowly reflexed, disc flat, sides declivous, surface with three distinct costæ extending from the base to apex and a short humeral carina, at apical third between the outer costæ a tuberosity, intervals densely and moderately coarsely punctured with distant coarser punctures close to and on each side of the costæ, epipleural fold narrow. Body beneath sparsely punctate, clothed with brownish hair. Length* .64—.92 inch; 16—23 mm. (Pl. V, fig. 2).

Male.—Anterior tarsi moderately dilated, anterior tibiæ slightly sinuous on the inner side, the femora with two teeth near the apex, one on each border, that in front larger. Middle tibiæ slightly arcuate. Posterior femora large, inflated and with a broad tooth near the tip on the posterior border, the tibiæ strongly arcuate with a triangular dilatation near the tip and the apical angle in front of the tarsi prolonged. Apex of elytra obliquely truncate but not prolonged.

Female.—The anterior tarsi are slender, the tibiæ not sinuous, the femora without teeth. The middle tibiæ are slightly arcuate. The posterior femora are slender and simple and the tibiæ nearly straight, the apex not prolonged in front of the tarsi. The elytra are more obliquely prolonged.

Males occasionally occur with the sexual characters almost entirely undeveloped, differing in no respect from the female except that the anterior tarsi are feebly dilated and the tip of the posterior tibia is prolonged in front.

This species is the nearest approach in many respects to Necrophorus, and the discal elevation of the thorax is a feeble imitation of that genus.

Widely distributed in the Atlantic region.

S. truncata Say.—Moderately elongate, black, depressed, surface sparsely clothed with fine black pubescence. Head moderately constricted behind the eyes, the occiput transversely impressed, surface densely punctured and finely pubescent. Labrum broadly emarginate. Antennæ black, club elongate-oval, of five joints, the first two glabrous, the terminal one-half longer than the tenth. Thorax one-third wider at base than long, narrowed in front, apex feebly emarginate, sides slightly arcuate, basal angles obtuse, base trisinuate, disc moderately convex, sides posteriorly vaguely deplanate, surface densely punctured and finely pubescent. Scutellum densely punctured. Elytra as wide at base as the thorax, slightly wider posteriorly, sides feebly arcuate, margin narrowly reflexed, apex squarely truncate, disc rather flat, sides gradually arcuate, surface subopaque sparsely punctulate and pubescent, sometimes with faint traces of the two inner costæ and a slight tuberosity. Abdomen above densely, beneath more sparsely punctate and pubescent. Body beneath moderately densely punctured. Epipleural fold of elytra rather narrow. Length .50—.60 inch; 12.5—15 mm.

The male has the anterior tarsi moderately dilated and the abdomen much more prolonged beyond the elytra than the female.

* These measurements are taken from the head to the tip of the elytra, the abdomen being so variably retracted or protruded as to give unreliable measures. This course is followed in all the species of this genus.

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This species is easily known by its very black velvety aspect with the elytra feebly sculptured and squarely truncate at apex.

Occurs in Kansas, New Mexico and Arizona.

S. lapponica Herbst.—Oval, slightly oblong, depressed, black opaque, head and thorax pubescent. Head densely punctured with short erect yellow hairs. Labrum broadly emarginate. Eyes oval, oblique, not prominent. Antennæ black with an oval club of four joints, the first glabrous, the terminal longer. Thorax nearly twice as wide as long, sides arcuate and gradually narrowed to the front, apical and basal angles obtuse, base feebly emarginate at middle, on each side sinuate, disc irregular with vague tuberosities clothed with darker pubescence, surface densely punctured and clothed with short yellowish pubescence. Scutellum densely punctured. Elytra as wide as the thorax, sides nearly parallel or very feebly arcuate, the margin moderately reflexed, apex sinuately truncate, more prolonged in the female, disc flat, sides declivous, surface tricostate, the outer shorter but more elevated terminating at a tuberosity, second and third feebler but gradually longer, the intervals with a row of moderately large tubercles between which the surface is obsoletely punctate and with very short hairs; epipleural fold moderately wide, concave. Body beneath moderately densely punctate and clothed with brownish hairs. Length .48 inch; 12 mm.

In the male the first four joints of the anterior tarsi are moderately dilated. In the female the sutural angle of the elytra is much more prolonged than in the male.

The species varies in length a little larger or smaller from the above measurement. It is an easily known species.

Occurs from western Canada to Alaska, thence southward through Oregon and California to Mexico, also in the region of the Plains. I have not seen it from the region east of the Mississippi.

S. trituberculata Kby.—Oblong-oval, black, sparsely clothed with very short hair. Head moderately narrowed behind the eyes, occipital impression rather deep, surface densely punctate. Labrum short, broadly emarginate. Antennæ black, with four-jointed club, the terminal joint nearly as long as the preceding two. Thorax about one and a half times as broad as long, narrowed in front, sides moderately arcuate, base emarginate at middle, sinuate each side, disc moderately convex with somewhat irregular surface, the sides slightly flattened, surface densely punctured and with short pubescence. Scutellum flat moderately densely punctate. Elytra as wide as the thorax and twice as long, sides nearly straight, margin narrowly reflexed, apices in male conjointly rounded, in female slightly sinuate and prolonged, surface coarsely but not densely punctate, each puncture with a short recumbent hair, disc flat at sides rather suddenly declivous and with three distinct costæ, the outer more elevated terminating at the tuberosity, the middle passing through the tuberosity and often reaching the apex very nearly, the inner nearly reaching the apex. Body beneath black, shining, moderately densely punctate. Length .36—.44 inch; 9—11 mm.

The anterior tarsi of the male are moderately dilated, the posterior tibiæ straight.

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In some specimens the two inner costæ of the elytra are interrupted near their apices and reappear near the apical margin as small oblong tubercles, these two with the usual tuberosity gave to Kirby the specific name. This species is the smallest in our fauna and resembles a miniature *inæqualis*, but is more elongate and with the base of the thorax emarginate at middle. It also resembles *opaca*, but the differences are still more important as will be seen under that species.

Occurs in the Hudson's Bay region.

S. inæqualis Fabr.—Oval, slightly oblong, depressed, black, opaque. Head gradually narrowed behind the eyes, occiput slightly transversely impressed, surface moderately densely punctured. Labrum broadly emarginate. Antennæ black, rather short, club gradually formed of four joints the terminal longer. Thorax twice as wide as long, narrowed in front, apex emarginate, sides moderately arcuate, hind angles obtuse, base with a broad truncate lobe at middle on each side sinuate, disc at middle with feebly elevated longitudinal costæ, the two at middle nearly straight, the outer two sinuate, surface more densely punctured at middle than at the sides. Scutellum broad acute at tip, densely punctured. Elytra as wide as the thorax, very little longer than wide conjointly, sides moderately arcuate, margin broad and rather widely reflexed, apices conjointly rounded in the male, slightly obliquely prolonged in the female, disc flat at middle, obliquely declivous at the sides, with three costæ, the outer stronger and terminating one-third from apex in a slight tuberosity, the two inner costæ very feebly elevated, attaining the apical margin, intervals obsoletely sparsely punctate. Epipleural fold broad, its inner portion vertical. Body beneath more shining than above, sparsely punctate and pubescent. Length .40—.56 inch; 10—14 mm.

In this species the anterior tarsi of the male are but feebly dilated, the tips of the elytra conjointly rounded. In the female the elytra are obliquely prolonged and the margin slightly sinuate near the tip.

This species could hardly be mistaken for any other species excepting possibly *trituberculata*, which is however more elongate, the lobe of the thorax emarginate and the anterior tarsi of the male very distinctly dilated. Immature specimens at times resemble *marginalis*, but this species is always more elongate and the elytra more coarsely punctured.

Widely distributed over the Atlantic region east of the Rocky Mts.

S. noveboracensis Forst.—Oval, slightly oblong, beneath nearly black, thorax piceous broadly margined with yellow, elytra brownish to piceous. Head moderately densely punctate, occiput feebly transversely impressed. Labrum moderately deeply emarginate. Antennæ with four-jointed, elongate-oval club, the terminal joint longer. Thorax about one-half wider than long, narrowed in front, apex emarginate, sides moderately arcuate, the extreme margin slightly thickened, base truncate at middle, sinuate each side, disc moderately convex, sides broadly flattened, the former with slightly irregular

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surface, punctuation moderately dense but not deeply impressed. Scutellum flat, densely punctured. Elytra as broad as the thorax, sides slightly arcuate, margin moderately wide and reflexed, apices conjointly rounded in the male and slightly prolonged in the female, surface very distinctly and moderately densely punctate, a slight tuberosity posteriorly through which two of the costæ pass, the inner costa is fine and entire extending from base to apical margin, the middle is obliterated at its basal third but attains the apex, the outer and stronger costa extends from the humeral umbone and after passing through the tuberosity joins the second costa. Epipleural fold moderately wide, concave. Body beneath moderately densely punctate and clothed with short brownish hair. Length .52 inch; 13 mm.

The males have the anterior tarsi very little broader than the female. In both sexes the posterior tibiæ are arcuate, more distinctly in the male. The junction of the outer and second costa is not always absolute, although in the vast majority there is a much closer approximation than in any other of our species.

Widely distributed in the Atlantic region east of the Rocky Mts.

S. americana Linn.—Broadly oval, depressed, beneath black, thorax yellow with discal black space, elytra brownish with the elevations darker. Head gradually narrowed behind the eyes, occiput transversely impressed, surface moderately densely punctured, sparsely pubescent. Antennæ rather short, club gradually formed of five joints the last three pubescent, the terminal longer. Labrum deeply emarginate. Thorax nearly twice as wide as long, much narrowed in front, apex emarginate, sides feebly arcuate, hind angles obtuse, base broadly lobed at middle, sinuate each side, surface densely and equally punctured. Scutellum broad, densely punctured. Elytra a little wider than the thorax, in some specimens wider conjointly than long, sides moderately arcuate, margin broad, apices variable in the sexes, disc feebly convex with three very indistinct costæ between which are anastomosing elevations, the intervals moderately densely punctate. Epipleural fold broad, its inner portion vertical. Body beneath black, moderately densely punctate. Length .64—.80 inch; 16—20 mm.

In the males the anterior and middle tarsi are moderately and similarly dilated, the elytra are always shorter and more obtuse at tip, the sutural angle is slightly retracted but acute. In the female the tarsi are not dilated, the elytra more obliquely prolonged and the suture more distinctly retracted.

Occurs everywhere from Hudson's Bay to Texas, and to the eastward of that line.

I have adopted the Linnean name for this species in preference to that of Catesby, whose name was published in 1731, prior to any of the dates accepted as the starting point of our nomenclature and as stated by Crotch the use of a binomial designation, for this species was merely accidental, as Catesby had at that time no idea of the binomial system subsequently proposed by Linnæus.

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S. ramosa Say.—Oblong-oval, depressed, black, elytra varying from opaque black to slightly bronze, without pubescence. Head oval, very little narrowed behind the eyes, which are feebly prominent, surface densely punctured, smoother in front. Labrum deeply emarginate. Antennæ with an elongate-oval club of four joints, the last three pubescent, the terminal longer. Thorax about one-half wider than long, sides arcuate and gradually narrowing to the front, the margin with a smooth narrow thickened edge, apex feebly emarginate, the angles obtuse, base bisinuate with obtuse angles, disc feebly convex, very densely and evenly punctured. Scutellum densely punctured. Elytra as wide as the thorax, sides parallel or feebly arcuate, the margin reflexed but of variable width, apices conjointly rounded in the male or slightly obliquely prolonged in the female, disc regularly convex, sides not declivous, surface with three smooth irregular costæ, feebly elevated with anastomosing branches from one to the other, the intervals opaque from an extremely fine granulation and with punctures moderately densely placed; epipleural fold moderately wide, concave. Body beneath sparsely punctate and with short, sparse, brown hair. Length .48—.70 inch; 12—18 mm.

In the male the anterior and middle tarsi are both dilated the former a little more broadly. In the female the tarsi are slender and the elytra a little more prolonged.

In the wide extent of country over which this species is distributed there is a certain amount of variation of form and surface lustre. This has already been noticed by Dr. Leconte, (Proc. Acad. 1853, p. 279), and requires no further mention here than to state that more broadly oval forms occur with the margin more widely reflexed, these are usually more opaque. The more oblong forms with the margin less widely reflexed are more shining and have often a distinct æneous surface lustre.

Occurs from Wisconsin westward to Oregon and California, and southwesterly to Nebraska, New Mexico and Arizona.

S. opaca Linn.—Oblong-oval, blackish, opaque, sparsely clothed with short yellowish hair. Head short, a little broader behind the eyes then slightly narrowed without occipital impression, surface densely punctured, clypeus short, antennal fovea intermediate between the frontal margin and the eye. Labrum deeply triangularly emarginate. Antennæ black, not thick, the four joints of the club not very much wider, the terminal conical at tip as long as the two preceding together. Thorax very nearly twice as wide as long, slightly narrowed in front, sides rather broadly arcuate, base broadly lobed at middle on each side sinuate, disc at middle slightly more convex and somewhat irregular, at sides somewhat flattened surface densely punctured often with some smoother spaces at middle. Scutellum flat, densely punctured. Elytra not wider than the thorax, a little more than twice as wide as long, sides very little arcuate, the margin narrowly reflexed, apices conjointly rounded in both sexes, surface moderately densely punctate, each puncture with a short yellowish hair, disc flat at middle, declivous at the sides with three costæ, the outer more elevated terminating posteriorly in a well-marked tuberosity, the middle nearly

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obliterated at the base, passing the inner side of the tuberosity and slightly sinuous extending very nearly to the apical margin, the inner costa more distinct than the middle and less prolonged at tip. Body beneath black, shining, not densely punctate. Length .44 inch; 11 mm.

The anterior tarsi of the male are moderately, the middle tarsi less dilated. The posterior tibiæ are slightly arcuate and at the inner apical angle is a short brush of hairs behind which is a distinct hook-like process arising from the inner side of the tibia and curving forward. The tibial spurs are exterior to this hook. In the female the tarsi are slender and the hind tibiæ without the brush of hairs and the hook.

The shorter head and the insertion of the antennæ so much closer to the frontal margin, the similarity of the elytral apices in the sexes and the peculiar hook on the hind tibia of the male, mark this and the next species as very distinct from all the others in the genus in our fauna. By these characters the species is abundantly distinguished from *trituberculata* which it resembles in a general way.

I have seen but two specimens collected in our territory, one from Hudson's Bay, the second from near Mono Lake, California, which is more decidedly black.

S. bituberosa Lec.—Form oval, very slightly oblong, black opaque, sparsely clothed with very short hair. Head short, densely punctured, formed as in *opaca*. Labrum as in *opaca*. Antennæ with four-jointed club, more abruptly formed than in *opaca*, the terminal joint nearly as long as the preceding two and conical at tip. Thorax twice as wide as long, very little narrowed in front, apex truncate, sides broadly arcuate, base with median lobe truncate, on each side arcuate, disc slightly more convex at middle, sides feebly flattened, surface densely punctured without smooth spaces. Scutellum flat, very densely punctured. Elytra as wide as the thorax and twice as long, sides moderately arcuate, margin moderately reflexed, more widely near the base, apices conjointly rounded in both sexes, surface densely and coarsely punctate, each puncture with a very short hair, disc flat or very slightly convex, the sides declivous, surface tricostate, the outer costa stronger and terminating at the moderately developed tuberosity, the middle costa feeble at base, slightly curved at the tip but not attaining the apical margin, the inner costa shorter than the middle. Body beneath black, not very densely punctate. Length .48 inch; 12 mm. (Pl. V, fig. 4).

The sexual characters here are precisely as in *opaca* which it otherwise greatly resembles. It is however a much broader species and in form more nearly resembles *inæqualis*. It will be observed also that these two species *opaca* and *bituberosa* have the middle coxæ more closely approximated than in any other of our species, and in the former might be called rather narrowly separated.

Occurs from northern Kansas to Wyoming and Montana.

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NECROPHILUS Latr.

Head oval, not narrowed behind the eyes which are round and moderately prominent. Labrum transverse, feebly emarginate. Antennæ free at base, nearly reaching the base of the thorax, slightly geniculate, first joint moderate in length, a little stouter toward the tip, second half as long and more slender, third as long as the first, slightly curved, gradually stouter to tip, 4—5—6 gradually shorter, together about one-half longer than the third, last five joints forming a loose club, seventh joint conical, joints 8—10 broader than long, eleventh oval, pointed at tip, the first six joints glabrous, shining, last five punctured and finely pubescent. Maxillary palpi moderately long, first joint very short, second slender at base gradually thicker, third half as long as second, obconical, fourth cylindrical as long as second pointed at tip. Anterior coxal cavities open behind, partially closed by a slender prolongation of the epimera. Middle coxæ narrowly separated, posterior coxæ contiguous. Legs moderately long, anterior and middle tibiæ with short ciliæ externally, the posterior very feebly spinulose. Tarsi slender, the anterior and middle equally dilated in the male. Thorax emarginate in front, lateral margin explanate and translucent. Elytra margined, epipleuræ broad. Form rather broadly oval. Body apterous (metasternum short) *Pettitii*, winged (metasternum long) *hydrophiloides*.

Two species are known in our fauna as follows:

Body apterous, elytra suddenly declivous posteriorly, the stria feeble, the punctures large..... **Pettitii** n. sp.

Body winged, elytra gradually declivous, striæ moderately deep, the punctures fine..... **hydrophiloides** Mann.

N. Pettitii n. sp.—Broadly oval, narrower in front, dark chestnut-brown, shining, glabrous. Head sparsely, finely punctulate. Thorax nearly twice as wide at base as long at middle, a little wider in front of base, sides arcuate, gradually narrowed to the front, margin broadly explanate, flat, translucent, disc more convex, apex emarginate, base squarely truncate, apical angles slightly obtuse, hind angles nearly rectangular, surface very sparsely punctate, very finely at middle, more coarsely at the sides. Elytra oval, disc suddenly declivous at apex, very little longer than wide, base truncate, wider than the elytra, humeri moderately prominent, obtusely rectangular, margin moderately wide, surface with rows of coarse, deep punctures, moderately closely placed, the intervals between the rows, convex, alternately a little more so, smooth. Body beneath very sparsely punctate, abdomen smooth. Femora very sparsely punctate. Length .44 inch; 11 mm.

In the males the first four joints of the anterior and middle tarsi are feebly dilated. The body is apterous.

This is the species erroneously determined by me (Trans. Am. Ent. Soc. 1868, p. 125), as *subterraneus*, from which this species differs in its much broader form, larger size and the posterior legs similar in the two sexes. The European species is also apterous.

Occurs from Canada (Pettit), to Kentucky (Dury).

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N. hydrophiloides Mann.—Oval, slightly oblong, a little narrowed in front, piceous or nearly black, margins paler, surface shining. Head sparsely punctulate. Thorax transverse, twice as wide as long, narrowed in front, widest a little in front of base, sides arcuate, margin broadly explanate, translucent, apex moderately emarginate, the angles very obtuse, base feebly bisinuate, angles rounded, disc convex sparsely punctate, margin a little more coarsely. Elytra oval, broadest at middle, not wider at base than the thorax, base oblique on each side, humeri obtuse, margin moderately wide, surface moderately deeply striate, striæ rather finely crenately punctured, intervals convex smooth. Body beneath and abdomen nearly smooth. Femora with very few punctures. Body winged. Length .36—.44 inch; 9—11 mm. (Pl. V, fig. 5).

The males have the first three joints of the anterior and middle tarsi broadly dilated, the fourth joint less so. This species is more elongate than the preceding and has the elytral margin less developed.

Occurs from Alaska southward through California.

PELATES n. g.

Head broadly oval, very slightly narrowed behind the eyes, the latter round, moderately prominent. Labrum short, transverse, feebly emarginate. Maxillary palpi moderate in length, first joint very short, second slender, cylindrical, third shorter obconical, fourth longer than the second, cylindrical, acute at tip. Antennæ a little longer than the head and thorax, gradually clavate, inserted under a distinct frontal margin, first joint stouter cylindrical, suddenly narrowed at base, joints 2—7 obconical, the third a little longer, 8—11 a little broader, the last elongate oval, pointed at tip. Anterior coxal cavities partly closed behind by a slender prolongation of the epimera. Middle coxæ very narrowly separated. Posterior coxæ contiguous. Legs rather short, the tibiæ scarcely at all spinulose externally. Tarsi slender. Elytra rather widely margined, the epipleuræ wide. Form broadly oval, subdepressed as in *Peltis*, body winged.

This genus, for which I have adopted an unpublished name of Fischer, is closely allied to Necrophilus but differs especially in the characters given in the table, and also by the anterior tarsi alone of the male feebly dilated.

P. latus Mann. (*Necrophilus*).—Broadly oval, about one-half longer than wide, feebly convex, piceous or castaneous, margins paler, surface glabrous, shining. Head sparsely irregularly punctate. Thorax twice as wide as long, narrower in front, sides moderately arcuate from base to apex, margin moderately explanate, apical angles rounded, hind angles obtuse, apex emarginate, base truncate. Elytra as wide at base as the thorax, sides feebly arcuate, margin moderately explanate and slightly reflexed, surface striate, striæ moderately coarsely punctured, intervals flat, smooth. Body beneath coarsely but sparsely punctate, femora punctate. Length .14—.16 inch; 3.5—4 mm. (Pl. V, fig. 6).

This insect resembles somewhat in form *Peltis ferruginea*, but is much smaller and a little more convex.

Occurs from Alaska to Washington Territory.

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PTEROLOMA Gyll.

Head oval, gradually but feebly narrowed behind the eyes which are round and moderately prominent. Labrum transverse, emarginate. Maxillary palpi moderately long, rather slender, first joint very short, the next three nearly equal, the second being slightly conical, the fourth acute at tip. Antennæ slender, as long as half the body, base free, very little thickened toward the tip, first joint rather short, stouter than the following, second a little shorter than the first, third longer, joints 3—10 very gradually decreasing in length, eleventh a little longer than the tenth, oval and acute at tip. Anterior coxal cavities partly closed behind by a slender prolongation of the epimera. Middle coxæ oval, not prominent, narrowly separated, posterior coxæ contiguous. Legs slender and long, tibiæ slender not or extremely feebly spinulose externally. Tarsi slender. Elytra margined, epipleuræ moderately wide. Form elongate with Carabide facies.

This genus is remarkable in the present tribe in the absence of tibial spinules and the slender elongate antennæ. Two species occur in our fauna both having considerable resemblance to Carabidæ so that the genus had been placed in that family, *P. Forsstrœmii* resembling a Nebria while *tenuicorne* recalls Calathus.

The two species are as follows:

Thorax cordiform, base narrowed.....**Forsstrœmii** Gyll.
Thorax transverse, base not narrowed, gradually narrowed in front.
tenuicorne Lec.

P. Forsstrœmii Gyll.—Moderately elongate, piceous, elytra, antennæ and legs paler, surface moderately shining, glabrous. Head coarsely irregularly punctured, a vague vertical fovea. Thorax cordate, one-half wider than long, sides arcuate in front, sinuate posteriorly, margin acute, slightly reflexed, apex emarginate, apical angles obtuse, basal angles rectangular, base truncate a little wider than the length of the thorax, an intra-angular impression, surface coarsely but irregularly punctured, median line moderately impressed foveate posteriorly. Elytra wider than the thorax, oval, narrower posteriorly, humeral angles obtuse, disc moderately convex, surface deeply striate, striæ coarsely punctured, intervals convex, the third and fifth with distant coarse punctures. Epipleuræ very coarsely punctured. Body beneath sparsely and indistinctly punctured. Length .24 inch; 6 mm.

The males have the anterior tarsi feebly dilated, and the first two joints of the middle a little stouter than in the female, in the latter sex the sixth ventral segment is deeply longitudinally impressed.

The resemblance of this insect to a small Nebria or to a Loricera is remarkable, and the deep punctures of the alternate intervals of the elytra are repeated here.

Occurs from the north of Europe through Asia to Alaska.

P. tenuicorne Lec. (*Necrophilus*).—Oblong-oval, piceous or castaneous, feebly shining, glabrous. Head nearly smooth. Thorax one and a half times as wide as long, widest at the middle, sides feebly arcuate, apex emarginate, a little narrower than the base, apical angles obtuse, base truncate, hind angles

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rectangular or slightly obtuse, margin explanate, more widely flattened posteriorly, surface feebly convex, variably punctured, sometimes very indistinctly or again with evident punctures at the sides and base. Elytra oval, wider than the thorax, very little narrowed at apex, surface finely striate, striæ finely punctured, intervals flat, the third and fifth with three or four fine, sometimes scarcely visible punctures situated near the second and fourth striæ. Body beneath with very sparse punctures and very little pubescence. Length .20—.24 inch; 5—6 mm. (Pl. V, fig. 7).

The males have the first three joints of the anterior and the first two of the middle tarsi dilated, the latter slightly.

This species exhibits some variations in the lustre of the surface and in its sculpture, some being quite opaque, others moderately shining, the latter have the striæ and punctures more evident and the punctuation of the thorax better marked. I believe they constitute but one species.

As the preceding species shows a resemblance to Nebria so this resembles *Calathus ruficollis* in smaller size, which has also punctures on the third elytral interval as fine as in this species.

Occurs in Oregon, Washington Territory, western Nevada and northern California.

AGYRTES Fröhl.

Head oval not constricted behind the eyes, the latter round and moderately prominent. Labrum short, transverse, broadly emarginate. Maxillary palpi moderate in length, first joint very short, second obconical, slightly arcuate, third short, stout, fourth ovate. Antennæ moderately short, attaining the hind angles of the thorax, inserted under a feeble frontal margin, first joint robust, cylindrical, suddenly constricted at base, second and third obconical, the latter a little longer and more slender, 4—6 short moniliform, the last five forming a loose club, the eleventh broadly oval. Anterior coxal cavities partly closed by a slender prolongation of the epimera. Middle coxæ narrowly separated. Posterior coxæ contiguous. Elytra very narrowly margined, their epipleuræ narrow. Legs rather short, tibiæ spinulose externally. Tarsi slender. Form oblong, parallel, body winged.

This genus as noticed by Lacordaire seems to make the lead towards the Anisotomini. One species only is known in our fauna.

A. longulus Lec. (*Necrophilus*).—Oblong, black or piceous, shining, glabrous. Head coarsely punctate. Thorax one-third wider than long, narrower in front, sides feebly arcuate from the base, margin not explanate, apex very feebly emarginate, the angles obtuse, base feebly arcuate, angles obtuse, disc moderately convex, surface sparsely punctate, punctures a little denser toward the sides. Elytra a little wider than the thorax, nearly twice as long as wide, sides very nearly parallel, feebly arcuate, surface moderately deeply striate, striæ finely crenately punctured. Body beneath rather coarsely not densely punctured. Femora sparsely punctate. Length .12—.20 inch; 3—5 mm. (Pl. V, fig. 9).

The anterior tarsi of the male have the first two joints feebly dilated.

Occurs from northern California to Vancouver, rare.

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SPHÆRITES Duft.

Head oval, not narrowed behind the eyes but narrowed in front and slightly prolonged. Eyes round, not prominent. Labrum broadly emarginate. Antennæ short, barely attaining the middle of the thorax, subgeniculate, free at base, no frontal margin, first joint rather short, thick, slightly arcuate, second ovate, third slender a little longer than the second, 4—8 small, gradually broader, 9—11 forming an abrupt, pubescent mass. Last joint of maxillary palpi oblong, equal to the two preceding together. Anterior coxæ with large trochantin, the cavities open behind, partially enclosed by a slender prolongation of the epimera. Middle coxæ moderately separated, posterior coxæ contiguous. Legs moderate in length, the tibiæ finely spinulose on the outer edge, the spurs moderate. Tarsi slender, joints 1—4 gradually decreasing in length, fifth as long as the preceding three. Thorax emarginate in front, bisinuate at base, fitting against the base of the elytra, the latter truncate at tip exposing the pygidium. Abdomen of five segments, the fifth a little longer. Body winged.

This genus has so completely the characters of the present tribe that I do not feel warranted in separating it on the number of the abdominal segments, more particularly as the sixth segment shows a marked tendency to disappear gradually as we follow the genera from *Necrophorus* to *Agyrtes*. *Sphærites* combines the peculiarities of *Necrophorus* and *Agyrtes* completing the circle of the table. It has Histeride resemblances but there is no closer relationship.

S. glabratus Fab. (*Hister*).—Form nearly square or slightly oblong, piceous, surface with æneous or bluish lustre. Head sparsely punctate. Thorax twice as wide as long, sides gradually arcuately narrowing to the front, apex emarginate, base broadly lobed at middle, hind angles rectangular, disc very sparsely finely punctulate, sides more distinctly punctured with a moderately deep marginal stria. Elytra as wide as the thorax, very little longer than wide, sides feebly arcuate, apices truncate, disc moderately convex with nine rows of moderate punctures. Pygidium with coarse and fine punctures intermixed. Body beneath black, sparsely punctate. Length .18—.22 inch; 4.5—5.5 mm. (Pl. V, fig. 16).

In the male the middle tibiæ are more arcuate than the female, and the posterior trochanter slightly prolonged and spiniform.

This species occurs in northern Europe, and in our own country from Alaska to California.

Tribe II.—*Lyrosomini.*

Anterior coxæ conical, prominent, contiguous, with a large trochantin, the cavities strongly angulate externally and open behind. Middle coxæ narrowly separated, posterior coxæ separated by an intercoxal process of the abdomen. Abdomen with five segments. Antennæ inserted under a frontal margin, eyes not prominent.

This tribe is distinguished from the Silphini by the separation of the posterior coxæ and from all except *Sphærites* by the abdomen with five segments. It seems to occupy an intermediate position between the Silphini and the elongate Cholevini. One genus only is known.

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LYROSOMA Mann.

Head oval, prominent, slightly narrowed behind the eyes which are round, not large and very feebly convex. Labrum deeply emarginate. Maxillary palpi moderately long, first joint very small, second moderately elongate, gradually stouter to tip, third much shorter, fourth nearly as long as second, cylindrical, slightly flattened and obtuse at tip. Antennæ slender, half as long as the body, second joint shorter than the third, joints 3—8 gradually shorter, 9—11 a little broader, the eleventh longer than the tenth, oval, acute at tip. Legs slender. Tibiæ not spinulose externally, spurs slender not long, tarsal claws slender and moderately long. Form elongate, recalling *Atranus*, body apterous.

L. opacum Mann.—Elongate, brownish or piceous, subopaque, surface glabrous. Head sparsely punctate. Thorax subcordate, as broad as long, apex and base equal, sides strongly arcuate in front, sinuate posteriorly, hind angles acutely rectangular, disc feebly convex, a slight impression within the hind angles and an obsolete median line, surface rather irregularly moderately densely punctate. Elytra oblong-oval, deeply striate, striæ punctured, intervals convex. Body beneath not densely punctate, with very indistinct pubescence. Legs paler. Length .28—.30 inch; 7—7.5 mm. (Pl. V. fig. 11).

In the males the anterior and middle tarsi have the first three joints dilated, more broadly in the former, the posterior tarsi are slender and long in both sexes, with the first joint not longer than the second. In the female the anterior and middle tarsi although not dilated are somewhat broader than the posterior.

Occurs in Alaska.

Tribe III.—*Pinodytini.*

Anterior coxæ transverse, feebly prominent, contiguous, with large trochantin, the cavities strongly angulate externally and narrowly open behind. Middle coxæ oblique, not prominent, moderately separated, the mesosternum flat and with an obtuse carina which extends also to the metasternum. Posterior coxæ not prominent, separated by a distinct intercoxal process, oval at tip. Abdomen with six segments, the sixth feebly visible, the first moderately long. Antennæ inserted under a frontal margin. Eyes entirely absent.

This tribe has been instituted for the reception of a small insect which refuses by its organization to enter any of the tribes as at present constituted. The form is nearly that of a depressed *Ptomaphagus*, the head and antennæ rather Anisotomide. The anterior coxæ are very feebly prominent as in many Anisotomidæ, the trochantin is large and finally the cavities are open behind. It seems, therefore, from its entire organization, to be an osculant tribe with affinities equally strong in the direction of the Silphini, Anisotomini or Cholevini.

PINODYTES n. g.

Head short, oval, not prominent, not narrowed behind, eyes entirely wanting. Front margined at the sides. Labrum short, transverse, truncate. Mandibles feebly prominent. Maxillary palpi of moderate length, stout, first joint very short, second obconical, third nearly square, fourth as long as the two preced-

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ing together, conical, acute at tip. Labial palpi short, last joint cylindrical. Antennæ attaining the hind angles of the thorax, first joint cylindrical, very little stouter than the others, 2—3 similar, elongate-oval, each very little shorter than the first, 4—6 small, round, seventh broader, eighth equal to sixth, 9—10 similar to seventh, eleventh longer, oval at tip. Prosternum in front of coxæ moderately long. Scutellum small, triangular, base of thorax overlapping slightly the elytra. Legs moderately stout, tibiæ, especially the middle, obliquely truncate at tip and spinous at the outer apical angle. Tarsi five-jointed in both sexes, the first four short and nearly equal, the fifth as long as these taken together, claws slender. Epipleuræ rather broad, body apterous.

P. cryptophagoides Mann. (*Catops*).—Oblong-oval, castaneous, shining, glabrous. Head nearly smooth. Thorax one-third wider than long, apex feebly emarginate, base truncate, hind angles rectangular, sides feebly arcuate and slightly narrowing to the front, disc regularly convex, very sparsely minutely punctulate and under high power finely alutaceous. Elytra as wide as the thorax, sides feebly arcuate, gradually narrowed at apical third, disc moderately convex, surface with sparsely placed minute punctures in the basal region showing a tendency to a strial arrangement, apex absolutely smooth. Body beneath very sparsely punctate. Length .08 inch; 2 mm., varying a little. (Pl. V, fig. 12).

The males have the first three joints of the anterior tarsi moderately dilated, the middle and posterior tarsi slender.

The distribution of this insect is remarkable. Originally discovered in Alaska, (a type from Mannerheim being before me), Mr. Henry Ulke has lately discovered it in moderate numbers near Washington, D. C. It lives in the fine debris of rotting wood, etc,

Tribe IV.—*Cholevini.*

Anterior coxæ cylindric-conic, prominent, contiguous, without trochantin, the coxal cavities feebly or not angulate externally and closed behind. Middle and posterior coxæ variable in position, either contiguous or not. Abdomen with six distinct segments except in *Colon* where there are but five. Antennæ free at base, no frontal margin.

The form of the anterior coxæ varies somewhat in the different genera being almost truly cylindrical in *Leptodirus* and decidedly conical in the other genera. The cavities into which the coxæ are received are worthy of special study, being constructed on a plan which I have not observed elsewhere. The base of the coxa is received into a cotyloid depression in the prothorax the only opening into the cavity of the thorax being a foramen of moderate size in the outer portion of the depression, in the usual position of the trochantin. The form of articulation between the coxa and the thorax is very nearly a ball and socket joint. The coxæ are always closed behind more or less widely and in many of the genera by the meeting of the sternal side pieces on the median line, the prosternum not attaining

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the posterior margin. This is very evident in *Leptodirus* and *Pholeuon* but in the genera in which the closure behind is narrow it is difficult to decide, although it is probable that the prosternum does attain the hind margin of the thorax in them.

The middle coxæ vary, they may be contiguous or separated, in the latter case the mesosternum is often carinate, very obtusely in *Platycholeus*, while in *Adelops* and *Bathyscia* it forms a prominent keel-like lamina as in many Hydrophilidæ.

The metasternum is at most of but moderate length, in a large number of the species very short, in the latter case the wings are entirely wanting and in the former very feebly developed.

The posterior coxæ may be contiguous or separated in the latter case to a variable degree, widely in *Leptodirus*, by a triangular intercoxal process as in *Platycholeus* and *Pholeuon* or very narrowly as in *Bathyscia*.

The legs are rather slender and in many species, especially those living in caves, long and spider-like. The tarsi are always five-jointed on the posterior and middle legs the anterior being often four-jointed either in one sex as in *Pholeuon* or in both sexes *Oryotus*. The anterior tarsi are more or less dilated in the males and often the middle also, in the latter case the first joint alone is broader, species occur in *Colon* with the tarsi slender in both sexes.

The tibial spurs are always slender and in one genus *Prionochæta* very long and pectinate on their margins, and in the male of *Colon*, those of the anterior tibiæ especially, dentate at the sides. The antennæ are variable and are sufficiently described with the genera, very little can be said in a general way excepting that in those genera without eyes the antennæ are very long and slender, while in those genera with eyes the antennæ are more or less clavate and shorter. The eighth joint is shorter than the seventh or ninth and in most cases also narrower, there being two exceptions only as far as I have seen, the one in *Leptodirus* with slender antennæ, the other in *Colon* with the clavate form.

The genera included in this tribe have been more or less widely separated by authors, by giving what seems undue prominence to certain characters to the exclusion of others, but with the arrangement of the genera here proposed the relationship between them seems quite evident, *Leptodirus* being of course the more aberrant.

From the curious forms of some of the species of this tribe some erroneous speculations have arisen.

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The genera of this tribe may be divided in groups in the following manner:

Abdomen with six segments.
Posterior coxæ distinctly separated but in a variable degree; elytra usually without sutural stria; antennæ slender and long.
Head oval, without eyes.....BATHYSCIÆ.
Head broad, narrowed to a neck behind and with eyes.....PLATYCHOLEI.
Posterior coxæ contiguous; elytra with sutural stria usually deeply impressed; antennæ more or less clavate; head suddenly narrowed behind the eyes forming a neck, the occiput elevated in a ridge.....CHOLEVÆ.
Abdomen with five segments (often four in ♀).
Posterior coxæ contiguous; elytra with sutural stria well marked; head oval not narrowed behind, eyes round and moderately prominent, occiput not elevated.....COLONES.

The above division in groups seems absolutely necessary, not only for greater convenience of study but also from the fact that the genera included in each represent quite distinct types.

The groups are also very naturally interlinked, the second possessing many important characters of the first and third, while the fourth seems to be related to the third through *Camirus** Sharp.

The first group contains all the eyeless genera, (*Adelops* having eyes), the species living for the most part in caves. As yet our country possesses no members of it.

The genera of the group BATHYSCIÆ are all European and it might seem out of place to discuss them here, but the study of them has proven so interesting that I have thought it profitable to review them, as their occurrence in some of our caves is possible.

Before proceeding with the discussion it is important to note that *Adelops* does not belong to the group. This genus was founded on a species (*hirtus*), from the Mammoth Cave of Kentucky, which must under all circumstances bear the generic name. The European species included in *Adelops* are members of another and probably of two genera, as will be seen further on. *Leptodirus* and *Bathyscia* were the only genera known at the time of the publication of Lacordaire's genera, the second having been improperly suppressed into *Adelops*, *Pholeuon* Hampe, *Oryotus* and *Drimeotus* Miller, were subsequently described without any reference to their relationship to *Leptodirus*.

To Mr. Schaufuss (Stettin Zeitschr. 1861, p. 424, et. seq.), is due the credit of associating them in a group, to which he adds two new genera through a misconception of the characters of *Adelops* and *Bathyscia*.

* Ent. Mo. Mag. June, 1876, p. 23.

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The following is his table:

A.—Anterior tarsi dissimilar in the sexes, male five- female four-jointed.
a.—Anterior tarsi slender in both sexes.
aa.—Scutellum invisible.....Leptoderus.
bb.—Scutellum distinct.
Body elongate, mesosternum strongly carinate.....Drimeotus.
Body oval, mesosternum feebly carinate.....Quæsticulus.
b.—Anterior tarsi of male dilated. Scutellum distinct.
Body elongate.....Pholeuon.
Body oval, convex.....Quæstus.
B.—Anterior tarsi in both sexes four-jointed.
Anterior tarsi slender.....Adelops.
Anterior tarsi dilated.....Oryotus.

In order that this table may be understood in the light of remarks made further on, the following criticisms are suggested.

It does not seem a valid procedure to separate as genera groups of species in which the males have the anterior tarsi very feebly dilated on the one hand or more dilated on the other. I would therefore suggest the propriety of uniting Drimeotus with Pholeuon and Quæstus with Quæsticulus. In these last two and Adelops, Schaufuss is entirely in error. Abeille de Perrin informs us that "all the species of Adelops known to him, more than eighty in number, have the anterior tarsi ♂ five-jointed, ♀ four-jointed, except in three species," neither of which is the type of *Bathyscia*. It is therefore evident that the two genera established by Schaufuss belong to the eighty species above mentioned, and as these do contain the typical species of Schiœdte the name *Bathyscia* must be adopted for them, and the name Adelops as used by Schaufuss becomes doubly erroneous and for the species there included Abeille proposes the name *Aphaobius*.

The next contribution of any extent to the knowledge of these genera is contained in a "*Liste générale des Articulés cavernicoles de l'Europe*," by MM. Bedel and Simon, (Journal de Zoologie, Paris, 1875), from which I have been unable to obtain any ideas of the limits of the genera. The paper is a useful list of species and contains in a foot-note an intimation that the genera have need of a revision.

A more important though less extensive contribution, is that of M. E. Abeille de Perrin, entitled "*Notes sur les Leptodirites*," (Bull. Soc. Hist. Nat. Toulouse, 1878). In this I find the important statement that his collection contains "more than eighty species of *Adelops*, all of which have the anterior tarsi of the male five-jointed and in the females four-jointed, excepting *Milleri* and two unnamed species

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which have four joints in both sexes." The former which undoubtedly contain the typical species of Schiœdte, represent *Bathyscia*, (*Quæstus* and *Quæsticulus* Schauf.), while the latter species he proposes to call by a new name *Aphaobius*,* (*Adelops* ‡ Schauf.). In this paper M. Abeille gives a table of the genera known to him, of which the following is a copy.

A.—Elytra with lateral margin convex without reflexed border visible from above.
B.—Scutellum barely visible, in fact short and extending across the entire base of the thorax.
C.—Elytra glabrous.....Leptodirus.
C C.—Elytra pubescent.....S. G. Propus.
B B.—Scutellum normal.
C.—Elytra of the length of the body. Thorax subcylindrical and constricted.....Antrocharis.
C C.—Elytra longer than the body. Thorax subdepressed and slightly narrowed in front of base.....S. G. Diaprysius.
A A.—Elytra more or less acutely margined and the edge visible from above.
B.—Anterior tarsi ♂ four-jointed.....Oryotus.
B B.—Anterior tarsi ♂ five-jointed.
C.—Elytral margin narrow. Penultimate joints of the antennæ suddenly thickened at tip.....Pholeuon.
C C.—Elytral margin wide. Penultimate joints of the antennæ thickened from base to tip.....Drimeotus.

Two other genera are mentioned in the paper founded on females alone, and which consequently cannot be placed with certainty in the above table. The first is *Cytodromus*† Abeille, which seems to have no characters given by which it differs greatly from Drimeotus. The second is *Spelæochlamys*§ Dieck, for which I find no valid generic characters given. Having never seen either of these genera it would be presumption to hazard an opinion concerning them, and I can only quote from Abeille, "*on peut dire avec M. Bedel, que les genres qui ont été proposés jusqu'ici ont été fort mal caractérisés; aucune vue d'ensemble n'a présidé à leur établissement.*"

In confirmation of the above quotation it may be stated that all European authors describe (*Adelops*), *Bathyscia* as having the posterior coxæ contiguous. Through the kindness of M. Sallé I have studied the following European species: *Freyeri*, *Schiœdtei*, *Bonvouloiri*, *Aubei*, *montanus* and *infernus*, which seem to represent the genus fairly, and all of them have the posterior coxæ separated either

* Abeille de Perrin, loc. cit. (in separate pamphlet), p. 8.

† *Cytodromus* and *Antrocharis* Abeille de Perrin, loc. cit. p. 11.

§ *Spelæochlamys* Dieck, Heyden's Reise nach Südl. Spanien, 1870, p. 93; (Berl. Zeitschr. Beih.).

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by a metasternal prolongation or an intercoxal process of the first abdominal segment.

I do not understand why M. Abeille has omitted *Adelops* (*Bathyscia*), and *Aphaobius* from the above table. They cannot constitute a separate tribe or even group, but should be placed: *Bathyscia* after *Pholeuon*, and *Aphaobius* after *Oryotus*, the regularly oval form separating both of the genera from those to which they are otherwise related by their tarsal characters.

The second group PLATYCHOLEI contains but one genus.

PLATYCHOLEUS n. g.

Form oval, depressed. Head suddenly contracted behind the eyes, occipital ridge indicated by a fine line. Eyes small, transverse to the axis of the head. Antennæ attaining the hind margin of the thorax, slender, gradually thickened externally, eighth joint a little narrower and shorter than the ninth. Last joint of maxillary palpi slender, conical, much narrower than the preceding and scarcely half as long, the third joint stout, conical and truncate at apex, second joint slender. Middle coxæ separated by the mesosternum which is obtusely elevated. Posterior coxæ separated by a broadly triangular process of the first abdominal segment. Tarsi slender, the first three joints of the anterior and the first two of the middle dilated in the males; hind tarsi with the first joint longer than the next three together. Tibiæ not spinulose externally, tip with small spurs and fimbriate with unequal spinules.

The mesosternum separates the coxæ rather more widely than in *Ptomaphagus* and is not carinate but forms an obtuse ridge. The head is not provided with an occipital ridge, so that it is more deeply retractile, while in all the other genera in which the head is suddenly narrowed behind the eyes, the occipital ridge is received against the apical margin of the thorax.

P. leptinoides Crotch, (*Ptomaphagus*).—Rather broadly oval, wider in front, depressed, testaceous, moderately shining, sparsely clothed with short luteous pubescence. Head very sparsely and finely punctulate. Thorax more than twice as wide as long, wider than the elytra, apex emarginate, sides strongly arcuate, broadest a little in front of base, rapidly arcuately narrowing to apex, base broadly emarginate, hind angles rectangular, surface shining, very sparsely punctulate. Elytra narrower than the thorax, humeri oblique, sides arcuately narrowing to tip, surface moderately densely punctate, sutural stria wanting. Body beneath sparsely punctate. Length .12 inch; 3 mm. (Pl. VI, fig. 2).

This species has considerable resemblance in facies to *Leptinus*. It is totally unlike any of the species of the tribe. In both sexes the middle tibiæ are arcuate, in the males the anterior tibiæ are broader at apical half, recalling the form of the tibiæ in certain *Stelidota*.

Occurs in northeastern California and western Nevada.

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The third group CHOLEVÆ as already remarked contains only genera with eyes, although these organs are feeble in *Adelops*. The head is suddenly narrowed to a neck, the eyes occupying the prominent lateral angle of the head. The tarsi are five-jointed on all the legs in both sexes. The genera all of which are represented in our fauna are as follows:

Mesosternum not carinate, the middle coxæ contiguous, last joint of the maxillary palpi as long as the preceding.
Antennæ serrate; tibial spurs moderate in length, simple...**Catoptrichus.**
Antennæ gradually clavate.
Tibial spurs not long, simple.....**Choleva.**
Tibial spurs very long, bipectinate.....**Prionochæta.**
Mesosternum carinate, coxæ separated; last joint of maxillary palpi short, subulate.
Antennæ gradually clavate not longer than the head and thorax; eyes well developed; mesosternal carina at most moderately prominent. **Ptomaphagus.**
Antennæ slender, longer than the head and thorax; eyes small, mesosternal carina prominent, keel-like.....**Adelops.**

As far as known to me *Catoptrichus*, *Prionochæta* and *Adelops* are peculiar to our fauna, the others occur also in Europe.

CATOPTRICHUS Murr.

Form moderately elongate. Head suddenly narrowed behind the eyes, occiput elevated. Eyes flattened posteriorly. Antennæ a little longer than the head and thorax, joints 5—10 perfoliate and emarginate beneath as in *Prionus*, the eighth joint one-half as long as either the seventh or ninth, eleventh joint elongate-oval, acute at tip. Maxillary palpi slender, the terminal joint a little longer and more slender than the preceding, acuminate at tip, third joint feebly conical, second slender. Middle and posterior coxæ contiguous, the mesosternum not carinate. Tarsi slender, anterior tarsi and first joint of middle (feebly) dilated in the male; hind tarsi with first joint as long as the next three. Tibiæ finely spinulose externally, the spurs slender, the inner of the posterior tibiæ half the length of the first tarsal joint.

This genus is most closely related to *Choleva* as defined in the present paper and differs only in the structure of the antennæ. It may be hardly necessary to state that this insect was unknown in nature to Mr. Murray and that his remarks are not entirely correct.

One species only is known.

C. Frankenhæuseri Mann. (*Catops*).—Moderately elongate, piceous, elytra, legs and antennæ at base ferruginous. Head moderately densely punctate, feebly shining. Thorax nearly square, angles obtuse, sides very feebly arcuate, the margin posteriorly feebly deplanate, disc posteriorly slightly flattened, surface feebly shining moderately densely punctulate. Elytra ferruginous, oblong-oval, humeri broadly rounded, sides moderately arcuate and

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behind the middle gradually narrowed to tip, margin very narrowly reflexed, sutural stria moderately impressed, surface substriate, a little more coarsely punctured than the thorax, sparsely clothed with short brownish pubescence and with a faint iridescent surface lustre. Body beneath and legs very finely punctulate. Length .24 inch; 6 mm. (Pl. V, fig. 13).

Male.—Anterior tarsi moderately dilated, anterior tibiæ obliquely excavated and finely pubescent on the inner side near the tip. The tip is furnished with a hook-like process directed from without inwards in addition to the two spurs, reproducing the character found in the posterior tibia of two species of Silpha.

Occurs in Alaska.

CHOLEVÁ Latr.

Form oblong or oblong-oval, depressed. Head suddenly narrowed behind the eyes, occiput elevated received against the apex of the thorax. Eyes flattened posteriorly. Antennæ as long as the head and thorax, the last five joints forming an elongate club, the eighth shorter and narrower than the seventh and ninth. Last joint of maxillary palpi elongate conical acute at tip, as long as the third joint. Middle and posterior coxæ contiguous, the mesosternum not carinate. Tarsi slender, the anterior dilated in the male, the first joint of middle also stouter but variable in the species. Tibiæ finely spinulose along their outer margins, spurs slender and half the length of the first joint.

By the absence of mesosternal carina this genus is allied to *Catoptrichus* and *Prionochæta*, from the former it differs in the structure of the antennæ and from the latter more especially in the character of the tibial spurs. It is also worthy of mention that while the species of *Ptomaphagus* have strigose elytra, those of *Choleva* with one exception have punctured elytra.

The species are more difficult to separate than those of *Ptomaphagus*, the following table which is necessarily full presents the differences between them. The sexual characters of each species are given as these materially assist in their separation in doubtful cases.

Hind angles of thorax rounded or obtuse.
  Elytra simply punctate.
    Thorax very distinctly narrower than the elytra, not narrowed in front, sides very feebly arcuate.
      Anterior tibiæ of male distinctly sinuate within; abdomen of female without impressions. ..... **egena** n. sp.
    Thorax not narrower than the elytra, sides arcuate and narrowed to the front.
      Anterior femora more or less flat on the under edge, usually glabrous and with a tubercle in the male.
        Form oblong.
          Male with the anterior tarsi broadly dilated, the first joint of middle tarsus much thickened..... **luridipennis** ♂ Mann.
          Female with ventral segments 3—6 foveate at middle.
            luridipennis ♀ Mann.

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Form oblong-oval.

Male with anterior tarsi moderately dilated, the first joint of middle tarsus not much thickened..... ....**simplex** ♂ Say.

Female with ventral segments not foveate.....**simplex** ♀ Say.

Anterior femora with the lower edge rounded, punctate and without trace of tubercle in male.

Form oblong, body distinctly coarctate at base of elytra.

Male with anterior tibiæ with a slight sinuation within the tarsi moderately dilated, the first joint of middle tarsus slightly thickened.....**basillaris** ♂ Say.

Female with ventral segments 5—6 rather deeply longitudinally impressed at middle.....**basillaris** ♀ Say.

Form oval, margins of thorax and elytra nearly continuous.

Male anterior tibiæ simple, the tarsi moderately dilated, first joint of middle tarsus slightly thickened.....**clavicornis** ♂ Lec.

Female with ventral segments 5—6 vaguely impressed.

clavicornis ♀ Lec.

Elytra very distinctly, transversely, finely strigose.

Male anterior tibiæ simple, the tarsi moderately dilated, the first joint of middle tarsus slightly thickened.....**decipiens** ♂ n. sp.

Female with ventral segments simple.....**decipiens** ♀ n. sp.

Hind angles of thorax rectangular, the thoracic and elytral margins continuous.

Male anterior tibiæ stouter, rather suddenly narrowed at base, the tarsi moderately dilated, first joint of middle tarsus thick.

terminans ♂ Lec.

Female with abdomen not impressed.....**terminans** ♀ Lec.

C. egena n. sp.—Oblong, narrower in front, piceous, elytra luteous becoming piceous from the middle to tip, surface pubescent. Head moderately densely punctate. Antennæ piceous, two or three basal joints pale. Thorax about one-fourth wider than long, not narrowed in front, sides very little arcuate, anterior angles rounded, hind angles obtuse, base feebly arcuate, surface moderately densely punctate. Elytra oblong-oval, wider than the thorax, somewhat more attenuate posteriorly, sutural stria moderately deeply impressed, surface faintly substriate, moderately densely punctate. Body beneath moderately densely punctulate. Legs piceous, tibiæ and tarsi usually paler. Length .14—.16 inch; 3.5—4 mm.

In both sexes the lower edge of the anterior femora is rounded. In the male the anterior tibiæ are distinctly sinuate on the inner side at middle, the anterior tarsus and the first joint of the middle rather feebly dilated. The last two segments of the abdomen are simple in both sexes, without grooves or impressions.

This species might be mistaken for *basillaris* Say, but the narrower thorax together with the sexual characters will serve to distinguish it.

Occurs in Alaska.

C. luridipennis Mann. (*Catops*).—Oblong-elongate, piceous, elytra brownish, surface pubescent. Head rather coarsely and moderately densely punctate. Antennæ piceous, basal half pale. Thorax more than half wider than long,

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narrower in front, sides arcuate, apical and basal angles rounded, base feebly arcuate, surface densely punctured, feebly shining. Elytra very little wider than the base of the thorax, oblong-oval, narrower behind, sutural stria moderately deeply impressed, surface without trace of striæ, moderately closely punctate. Body beneath finely punctate. Legs piceous or brownish. Length .16—.18 inch; 4—4.5 mm. (Pl. V, fig. 17).

In both sexes the anterior femora are flattened on the under edge and feebly punctate, the male has usually a small tubercle also at the middle, but this does not seem constant or at least very evident in all specimens. The anterior tibiæ in both sexes are simple. In the male the anterior tarsi are rather broadly dilated and the first joint of the middle twice as stout as the second. In the female the ventral segments 3—6 are foveate at middle, vaguely in the first two, more distinctly in the last two segments.

This species has almost exactly the form of *basillaris* as well as the color, but is known by the form of the femora and the sexual characters. Specimens occur with the elytra darker in color with the surface having a fuliginous lustre.

Occurs from Alaska to Oregon, and New England States.

C. simplex Say, (*Catops*).—Oval, slightly oblong, piceous or brownish, elytra very little paler, surface pubescent. Head moderately densely punctate. Antennæ piceous, two basal joints paler. Thorax about one-half wider than long, a little narrowed in front, sides moderately arcuate, anterior angles rounded, basal angles obtuse, base feebly arcuate, surface densely and rather finely punctate. Elytra scarcely wider than the thorax, more narrowed behind, sutural stria moderately impressed, surface not striate, moderately densely punctate. Body beneath and legs moderately densely punctate. Length .14—.16 inch; 3.5—4 mm.

The anterior femora are distinctly flattened beneath and in the male with a distinct tubercle at middle. The anterior tarsi of the male are moderately dilated and the first joint of the middle tarsus distinctly thickened. The anterior tibiæ are simple in both sexes, not sinuate. The ventral segments are simple in both sexes.

This species is less elongate than *luridipennis* and more nearly resembles in form *clavicornis*.

Widely distributed in the central portion of the Atlantic region.

C. basillaris Say, (*Catops*).—Oblong moderately elongate, piceous, elytra paler at base piceous at apex, surface pubescent, moderately shining. Head moderately densely punctate. Antennæ piceous, two or three basal joints paler. Thorax more than half as wide as long, slightly narrowed in front, sides moderately arcuate, anterior angles rounded, basal angles obtuse, base

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feebly arcuate, surface moderately shining not densely punctate. Elytra very little wider than the thorax, narrower behind, sutural stria feebly impressed, surface rather shining, not densely punctate. Body beneath moderately densely punctulate. Length .12—.16 inch; 3—4 mm.

The anterior femora beneath are rounded, not flattened, without trace of tubercle. In the male the anterior tarsi are moderately dilated and the first joint of the middle evidently thickened. The anterior tibiæ male have a slight sinuation within. In the females the fifth and sixth ventral segments are rather deeply longitudinally impressed at middle.

This species, the *Spenciana* of our lists, is so plainly the species intended by Say, that I have no hesitation in using his name. Murray has already indicated the synonymy of *cadaverinus* Mann., and I find *brunnipennis* Mann. not differing. Types of the last two are before me.

This is the most widely distributed species known to me. It extends from Alaska to California and Nevada to the Lake Superior region, White Mountains and as far south as the Middle States, with some variation in color and lustre.

C. clavicornis Lec. (*Catops*).—Oval slightly oblong, brownish-piceous, elytra sometimes paler, pubescent. Head moderately coarsely not densely punctate. Antennæ a little shorter than usual, scarcely attaining the hind angles of the thorax, piceous, apical and two basal joints paler. Thorax twice as wide as long, narrowed in front, sides rather strongly arcuate, apical angles rounded, the basal obtuse, base feebly arcuate, surface moderately densely punctate with a tendency to the formation of short transverse strigose. Elytra oval, gradually arcuately narrowed to apex, not wider than the thorax, sutural stria finely impressed, surface moderately densely punctate. Body beneath densely punctulate. Femora faintly strigose. Length .10—.12 inch.

The femora beneath are rounded and not flattened. The anterior tibiæ of the male are not sinuate within the tarsi moderately dilated. The first joint of the middle tarsus is also moderately thickened. In the female the fifth and sixth ventral segments at middle have a feeble longitudinal impression.

This species has been improperly placed as a synonym of *brunnipennis* = *basillaris* but it is very distinct. In outline it has the margins of the thorax and elytra almost continuous, the antennæ are shorter and finally the sexual characters differ.

Occurs from Michigan to Texas, Middle States to Colorado.

C. decipiens n. sp.—Oblong-oval, brownish, pubescent. Head finely sparsely punctulate. Antennæ piceous, pale at base. Thorax a little less than twice as wide as long, narrowed in front, sides arcuate, apical and basal angles rounded, the former, however, more distinct, base broadly arcuate, surface

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finely not densely punctulate, with feeble strigosity near the margin. Elytra not wider than the thorax, about one and a half times longer than wide, sides feebly arcuate and gradually narrowed to apex, sutural stria moderately impressed, disc obsoletely substriate, surface very finely and densely transversely strigose. Body beneath and femora moderately densely punctulate. Length .14 inch; 3.5 mm.

The lower edge of the femora is acute near the base, slightly grooved and smooth externally. The anterior tibiæ of the male are simple, not sinuate, the tarsi moderately dilated, the first joint of middle tarsi moderately thickened. The ventral segments are simple in both sexes.

This species has some resemblance to *Ptom. nevadicus* as well as to *luridipennis* of the present genus, but it is readily recognized by its strigose elytra, a character otherwise unknown in the genus.

Occurs at Olympia, Washington Territory, (Morrison).

C. terminans Lec. (*Catops*).—Oblong-oval, piceous or brownish, pubescent, margins of thorax and elytra continuous. Head moderately densely punctulate. Antennæ piceous, apical and two basal joints paler. Thorax twice as wide at base as long, sides arcuate and narrowed to the front, apical angles obtuse, basal angles rectangular but not produced, base truncate, surface densely finely punctulate. Elytra as wide at base as the thorax, gradually arcuately narrowing to the apex, sutural stria moderately deeply impressed, surface not very densely punctate. Body beneath moderately densely punctulate. Length .10—.12 inch; 2.5—3 mm.

The lower edge of the anterior femora is flat and curved in its entire length without trace of tubercle in the male. The males have the anterior tibiæ stouter than in the female and more suddenly narrowed at base, the tarsi are also moderately dilated, the first joint of middle tarsi proportionately stouter than in any other species. The abdomen is not impressed in either sex.

The form of the hind angles is peculiar to this species in the present genus and a relationship to *Ptomaphagus* indicated.

Occurs from Canada to Massachusetts, Virginia and Illinois.

PRIONOCHÆTA n. g.

Form elongate-oval, moderately convex. Head suddenly narrowed behind the eyes, occiput elevated received against the apex of the thorax. Eyes oval, flattened posteriorly. Antennæ as long as the head and thorax, feebly thickened externally, last four joints rather abruptly shorter than the preceding, the eighth shorter and very little narrower than the ninth. Last joint of maxillary palpi elongate conical, acute at tip, equal to the third joint. Middle coxæ contiguous, mesosternum flat. Hind coxæ contiguous. Tarsi slender, the anterior dilated in the male, first joint of the posterior nearly equal to the others united. Spurs of middle and hind tibiæ long, the inner nearly equal to the first joint of the tarsi, the spurs of all the tibiæ pectinate on both margins

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with fine spinules. Anterior tibiæ with two spinules at outer apical angle, the middle and posterior finely spinulose along the entire margin, the tip fimbriate with closely placed spinules of unequal length.

This genus represented only by *Catops opacus* Say, is allied to *Choleva*, but differs in the structure of the antennæ, the tibial spurs and the absence of dilatation in the middle tarsi of the male.

P. opaca Say, (*Catops*).—Oblong-oval, a little narrower posteriorly, thoracic and elytral margins very nearly continuous, black feebly shining, clothed with short dark brown hair. Head finely and densely punctured. Antennæ attaining the hind angles of the thorax, piceous, apical and two basal joints pale. Thorax less than twice as wide as long, narrowed in front, apical angles broadly rounded, apex truncate, sides broadly arcuate, at base slightly narrower, hind angles obtuse, base slightly arcuate, surface densely and finely punctulate. Elytra as wide as the thorax, a little more than twice as long as it, sides moderately arcuate and gradually narrowed toward the tips which are more obtuse in the male than in the female, the latter has the sutural angle very slightly prominent, surface moderately densely punctulate, substriate near the tip, the sutural stria well marked. Body beneath and legs moderately densely punctulate, the femora slightly strigose. Length .20 inch; 5 mm. (Pl. V, fig. 14).

Occurs in the northern States from Canada to Pennsylvania and Ohio, not common.

PTOMAPHAGUS Illig.

Form oval or slightly oblong or cuneiform. Head suddenly narrowed behind the eyes, occiput with a ridge received against the apex of the thorax. Eyes flattened posteriorly. Antennæ nearly as long as the head and thorax, gradually clavate, eighth joint always shorter and often a little narrower than the seventh and ninth. Maxillary palpi with last joint short, subulate, third elongate-oval truncate at tip, second slender. Middle coxæ separated by the mesosternum which is moderately strongly carinate. Posterior coxæ contiguous. Tarsi slender the anterior alone dilated in the male, the middle and posterior with the first joint as long or a little longer than the next two. Tibiæ finely spinulose externally, the spurs slender but not long.

This genus has been alternately suppressed and revived by authors who have treated this family more or less completely, but the characters separating it from the surrounding genera are so well marked and the facies of the species so decided that it seems as well founded as any of the genera of the tribe. It does not seem, however, that *Catopomorphus* is sufficiently distinct from the present, the trifling difference in the size of the eighth joint of the antenna hardly suffices to separate it generically.

The species of this genus all have the elytra and often the thorax also strigose, a character not elsewhere found well marked in our species of this tribe except in *Adelops*. Both sides of the continent furnish representatives of the genus, the greater number are however eastern.

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The genus as defined by the table of species is composed of quite homogeneous material. Several points of difference have been observed between groups of species which appear to have escaped observation. The antennal character is well known and needs no further comment. The point of next importance in the table is the character of the thoracic sculpture accompanied by one of still more utility in this family and elsewhere—the fimbriation of the tips of the middle and posterior tibiæ. Where the thorax is distinctly strigose the tibiæ are fimbriate with short, closely placed equal spinules, and in those with the thorax simply punctured the spinules are unequal. It might be noticed here that in genera, even those not remotely related, in which there is a resemblance more or less great in general appearance, there is a tendency to repeat or reproduce special characters. Among these instances I might cite *Conosoma*, *Ptomaphagus*, *Eucinetus*, *Eustrophus* and *Mordella*, in which the tibiæ are fimbriate with short equal spinules. Other more minute resemblances occur in these genera but this is not the place for their exposition, and with this hint for the benefit of others I will defer the further consideration to the future in a separate essay.

The other characters in the table need no special comment and the table is now presented as a condensation of the important characters of each species.

Eighth joint of antennæ very short and transverse, somewhat narrower than the seventh or ninth.

Thorax transversely strigose; middle and posterior tibiæ fimbriate with short, equal, closely placed spinules.

Striæ of elytra not very closely placed, surface moderately shining.

Elytra very obliquely strigose.....**consobrinus** Lec.

Elytra transversely strigose.....**californicus** Lec.

Striæ of elytra very densely placed, transverse. Subopaque.

nevadicus n. sp.

Thorax punctate, rarely strigose near the margin; middle and posterior tibiæ fimbriate with unequal spinules.

Inner spur of posterior tibiæ as long as the first tarsal joint; sutural stria rather feebly impressed.....**oblitus** Lec.

Inner spur short, less than half the first joint; sutural stria deeply impressed.....**pusio** Lec.

Eighth joint of antennæ at least half the length of the ninth and scarcely narrower.

Thorax not twice as wide at base as long, elytra oval gradually arcuately narrowing to apex.....**parasitus** Lec.

Thorax more than twice as wide at base as long, elytra conjointly somewhat triangular, rapidly narrowed from base to apex..**brachyderus** Lec.

Of the above species two are peculiar to the Pacific region,

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one extends across the Continent, the others are confined to the Atlantic region.

Pt. consobrinus Lec. (*Catops*).—Form oblong-oval, somewhat cuneiform or Mordella-like, brownish or piceous, feebly shining, pubescent, legs and antennæ at base paler. Head sparsely punctulate, pubescence radiating. Thorax one-third wider at base than long, slightly narrowed in front, sides feebly arcuate, base slightly arcuate, hind angles acutely rectangular, surface entirely transversely strigose. Elytra gradually narrowing, sides very feebly arcuate, apex suddenly obliquely narrowed, sutural angle not prominent, sutural stria moderately deeply impressed, surface very obliquely strigose. Body beneath moderately densely punctulate, femora strigose. Middle and posterior tibiæ fimbriate at tip with short equal spinules. Length .08—.12 inch; 2—3 mm. (Pl. V, fig. 15).

This species varies a little in color by having the elytra paler than the thorax. Some specimens have the strigosity a little less oblique near the tip but no other differences are observed.

This is our most widely distributed species being found from Michigan to Florida, Texas, Arizona and California, (Owen's Valley). It does not appear to occur in the maritime regions of the Pacific.

Pt. californicus Lec. (*Catops*).—Brownish or piceous, pubescent, closely resembling *consobrinus* but a little more oval, the sides of the elytra more arcuate and the surface *transversely* and more finely strigose. Middle and posterior tibiæ fimbriate with short closely placed equal spinules. Length .10—.12 inch; 2.5—3 mm.

This species is the representative of the preceding in the maritime regions of California, extending from San Diego northward.

Pt. nevadicus n. sp.—Brownish-piceous, subopaque, pubescent, oval, slightly oblong, subdepressed. Head finely punctulate, pubescence radiating. Antennæ piceous, four basal joints and tip paler. Thorax nearly twice as wide at base as long, sides feebly arcuate and gradually narrowed to the front, base slightly sinuate each side, hind angles slightly prolonged, surface very finely and densely strigose. Elytra gradually narrowing, sides very feebly arcuate, tip obliquely subtruncate, sutural stria moderately deeply impressed, surface *very densely and finely* strigose. Body beneath finely punctulate. Femora finely strigose, tibiæ fimbriate at tip with short equal spinules, the inner spur of the posterior tibia a little longer than half the first joint. Length .12 inch; 3 mm.

Abundantly distinct from the two preceding species by its more depressed form and the very dense and fine strigosity of the surface, which requires a moderate power to be seen.

One ♀ specimen from western Nevada, collected by H. K. Morrison.

Pt. oblitus Lec. (*Catops*).—Brownish or piceous, feebly shining, pubescent, form oval, slightly oblong, equally narrowed. Head sparsely punctate. Antennæ piceous, basal joints paler, eighth joint much shorter and narrower than the ninth. Thorax twice as wide as long, feebly narrowed to the front, sides slightly arcuate, base arcuate, hind angles obtuse, surface punctured with

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faint tendency to strigosity at the sides. Elytra as wide as the thorax, sides feebly arcuate, apices obtuse, sutural angle obtuse, sutural stria moderately impressed, surface transversely strigose, the strigæ not deep nor closely placed, pubescence rather coarse. Body beneath somewhat paler than above, finely punctulate, femora finely strigose. Hind tibiæ with rather long spurs, the inner equalling in length the first joint of the tarsus, fimbriate at tip with unequal spinules. Length .08 inch; 2 mm.

A small species easily known by the characters in the table, occurring in Georgia and Florida.

Pt. pusio Lec. (*Catops*).—Castaneous or piceous, moderately shining, pubescent. Form of *oblitus* which it resembles in most of its characters and differing in having the hind angles of thorax nearly rectangular, the sutural stria more deeply impressed and the inner spur of the hind tibiæ not longer than half the first joint. Length .06—.08 inch; 1.5—2 mm.

I have seen two specimens clearly identical from California and Vancouver, but I have provisionally placed with them some specimens from the Michigan and Lake Superior region, which differ in being a little more shining and with the strigosity of the elytra slightly oblique. It has been observed in *consobrinus* that similar differences do not seem to be specific.

Pt. parasitus Lec. (*Catops*).—Picco-rufous or castaneous, shining, clothed with fine pubescence, form oval, narrower posteriorly. Head sparsely punctate. Antennæ with eighth joint not narrower than the ninth and at least half as long. Thorax a little less than twice as wide at base as long, sides moderately arcuate and gradually narrowing to the front, hind angles subrectangular, base very feebly bisinuate, surface moderately densely punctate, slightly strigose near the sides. Elytra gradually arcuately narrowing from the base, apex obtuse, sutural angle rounded, sutural stria moderately deeply impressed, surface nearly transversely strigose, the strigæ rather coarse and distant. Body beneath finely punctate, femora strigose. Tibiæ fimbriate at tip with unequal spinules, the spurs of the posterior tibiæ short. Length .08 inch; 2 mm.

The antennal character serves to separate this and the next species from those which precede, but its importance generically seems to have been exaggerated.

Occurs from New York to District of Columbia, in the nests of a black ant.

Pt. brachyderma Lec. (*Catops*).—Castaneous, moderately shining, finely pubescent, form broadly oval rapidly narrowing from the base of the elytra. Head finely punctate. Antennæ as in *parasitus*. Thorax much more than twice as wide at base as long, sides arcuate and rapidly narrowing to the front, base sinuate on each side, hind angles rectangular, slightly prolonged, surface finely not densely punctulate on the disc and sides. Elytra but little longer than wide at base, sides feebly arcuate rapidly narrowing posteriorly, apices subobliquely truncate, sutural stria moderately impressed, surface finely and closely transversely strigose with a tendency to become simply punctate near the suture. Body beneath not densely punctulate, femora substrigose. Tibiæ

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fimbriate at tip with unequal spinules, the spurs short. Length .10—.12 inch; 2.5—3 mm. (Pl. V, fig. 16).

This species appears to resemble *Catops depressus* Murr. in form, but as he places that in the series with the mesosternum simple there does not appear to be any further relationship.

Occurs from Nova Scotia to New York, very rare.

ADELOPS Tellkampf.

Oval, narrower behind, convex, body above arched. Head suddenly narrowed behind, the angles prominent as in *Ptomaphagus*, occiput elevated, received against the apex of the thorax. Eyes small, normally placed, without pigment. Antennæ slender, a little longer than the head and thorax, the basal joint received in repose in a deep groove at the side of the head, the last five joints forming an elongate loose club, the eighth joint being shorter and a little narrower than the seventh or ninth. Maxillary palpi with the last joint slender, subuliform, third obconical truncate, second slender. Middle coxæ separated, the mesosternum with a strong keel-like carina. Metasternum short, body apterous, posterior coxæ contiguous. Tarsi slender, the anterior dilated in the male, the first joint of posterior equal to the two following. Tibiæ very finely spinulose externally, the spurs small.

The anterior tarsi are five-jointed in both sexes. This genus is very closely allied to *Ptomaphagus* and I am in doubt whether it should be retained as distinct. The only differences are: the small eyes, the deep depression at the side of the head and the very strong mesosternal carina. The antennæ are also longer and more slender. It may be hardly necessary to remark that the European species referred to *Adelops* do not belong there, as they have a narrow head deeply inserted in the thorax and absolutely deprived of eyes. For these the name BATHYSCIA Schiœdte, should be used.

A. hirtus Tellk.—Oval, narrower behind, pale brown, moderately shining, clothed with yellowish brown pubescence. Head finely and sparsely punctulate, pubescence arranged in a radiating manner from the centre of the vertex. Thorax nearly twice as wide as long, sides gradually arcuate narrowing from base to apex, hind angles rectangular, base squarely truncate, surface sparsely punctulate at middle, strigose at the sides. Scutellum short, broad, usually concealed in repose. Elytra a little narrower than the thorax, sides feebly arcuate gradually converging, apex gradually narrowed, sutural angle obtuse ♂, acute ♀, surface rather coarsely strigose, the lines of minute punctures slightly oblique, sutural stria entire deeply impressed. Body beneath very finely punctulate, femora strigose. Length .08—.10 inch; 2—2.5 mm. (Pl. VI, fig. 1).

Occurs in Mammoth Cave, Kentucky, as well as in other caves on the western side of the mountains.

At this point it is proper that the attention of observers should be directed to the collection of the coleoptera in our large caves. It seems hardly probable that but one Silphide should live in them and it not eyeless.

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The group COLONES contains but two genera thus far described, one only occurs in our fauna, the other is from Auckland, N. Z., they are distinguished in the following manner:

Antennæ gradually clavate, eighth joint not narrower nor shorter than the contiguous joints; last joint of maxillary palpi slender.....**Colon.**

Antennæ very slightly thicker externally, eighth joint shorter and a little narrower than the seventh and ninth; last joint of maxillary palpi dilated, subsecuriform.....**Camiarus.**

The genus *Camiarus* presents all the essential features of the tribe Cholevini as defined in the present paper, and must be referred to the present group by the form of the head and the structure of the abdomen. It is however, somewhat of a synthetic type, presenting a structure of antenna more nearly resembling that seen among the first two groups than of the Cholevæ taken collectively. I am not able to perceive the relationship with the Scydmænidæ which Dr. Sharp intimates, although one of the species does certainly resemble a robust Eumicrus in facies. The dissimilarity in form of the two species seems to indicate the occurrence of others. For specimens I am indebted to the great liberality of Dr. Sharp to whom we owe our knowledge of them, (Ent. Mo. Mag. xiii, p. 23). Figures of the two species will be found on Pl. VI, fig. 24—25.

COLON Herbst.

Form oblong-oval, usually moderately convex. Head oval, not narrowed behind the eyes, occiput not elevated. Eyes nearly round, moderately prominent. Antennæ rarely passing the middle of the thorax, first joint moderately stout not long, second nearly as stout but shorter, third more slender than the second and variable in length, joints 4—7 usually short, gradually wider, 8—11 forming an oblong moderately compact club. Last joint of maxillary palpi slender, subulate. Middle coxæ separated, the mesosternum not carinate, posterior coxæ contiguous. Tarsi slender, the middle and posterior usually compressed, and with the first joint somewhat shorter than the second, the anterior usually dilated in the male. Tibiæ spinulose, the spurs in the male broader from middle to base or in the anterior tibia dentate at the sides. Abdomen with five segments, the terminal often retracted and showing but four.

This genus is separated from all others in the tribe by the structure of the antennæ, head and abdomen.

In most if not all of the books the mesosternum is said to be carinate, this is not so in any of our species not even in that which I recognize as *bidentatum*.

The most curious character observed, and one which appears to have escaped notice, is the structure of the tibial spurs in the male. On the anterior tibia especially, the front spur is short and stout and at the sides dentate or lobed, recalling somewhat the structure ob-

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served in the *Triplectrus* group of Anisodactylus or the *Trisena* group of Amara, The larger spur of the middle and posterior tibiæ is slender but abruptly wider from the middle to the base. This form of spur is important in the determination of sex, as some species have the anterior tarsi as slender in the male as in the female, so that the presence of a permanent character common to all males enables us at once to determine to which group a species should be referred.

The importance of sexual differences in the male has always been recognized as a means of fitly dividing the species in groups, by all authors who have studied the genus, (Erichson, Kraatz, Tournier and Thomson), the latter even going so far as to separate those with anterior tarsi dilated and those not so into two genera.

Recognizing the value of some independent characters for the determination of sex, one which will be common to all the species and not to a part only, M. Henri Tournier (Ann. Ent. Soc. Fr. 1863, p. 134), states that the males have five abdominal segments and the females but four. He says: "I have been able to convince myself that this character is constant, I have observed it in nature on all the species of the genus with the exception of *C. emarginatus* Rosenh., which I have not been able to procure."

In a very careful examination of our species I am prepared to say that this character has absolutely no value as far as they are concerned. In support of my own assertion the following table is presented which can be made instructive from another standpoint.

	MALES.		*FEMALES.*	
	four segments.	five segments.	four segments.	five segments.
1. **bidentatum.**	0	2	0	0
2. **paradoxum.**	0	2	0	0
3. **dentatum.**	0	1	1	0
4. **Hubbardi.**	0	5	0	0
5. **putum.**	0	7	0	0
6. **celatum.**	0	1	0	0
7. **magnicolle.**	4	3	0	0
8. **pusillum.**	8	2	1	0
9. **inerme.**	1	1	1	0
10. **thoracicum.**	0	1	0	1
11. **asperatum.**	2	0	1	1
12. **clavatum.**	4	3	0	0
13. **nevadense.**	5	1	1	0
	24	29	5	2

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From the above list it will be seen that 60 specimens have been observed, 53 ♂ and 7 ♀, with several others too mutilated to be safely made use of. The table shows the relative frequency of the sexes. Of the 53 males 24 have four abdominal segments visible, 29 have five segments. Of the females 5 have four segments and 2 have five. Thus the value of the number of segments in determining the sex of our species is completely disproved by the statistical arrangement of the specimens.

Another point in connection with this is a comparison of the European species with our own on other characters. Of the twenty-four species included in the admirable monograph by Tournier, twenty-two have the posterior thighs of the male variably dentate, one only has simple thighs and of one the male is unknown. In the preceding list of our species five (*bidentatum* is probably introduced and not counted at this time), have dentate thighs and seven simple thighs.

Reverting to the table all the males with dentate thighs have five abdominal segments and the only known female four. The last seven species with the posterior thighs simple, a series in which we greatly exceed the European number, we have ten males with five segments and seventeen with four, and in the females four have four segments and two have five.

From the evidence afforded by our own material it is highly probable that Tournier's statement is entirely correct for the European species and not at all true for those peculiar to our fauna.

The antennal club varies in length and thickness and apparently in the number of joints composing it. In the following pages the club is for the most part called "four-jointed," but in several instances the seventh joint is so much larger than the sixth and approximates more closely in size to the eighth that the club is then called "five-jointed."

The study of the species beyond this point is an extremely difficult one and males only can be determined with certainty even by comparison, fortunately they are more abundant.

The following table will assist the student in the determination of the species:

Anterior tarsi of male slender, not at all dilated. Posterior femora of male toothed near the apex.

Posterior tibiæ distinctly arcuate, an obtuse tooth near the knee.

bidentatum Sahlb.

Posterior tibiæ feebly arcuate and slightly narrowed at the knee, without tooth..... **paradoxum** n. sp.

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Anterior tarsi of male with three joints rather broadly dilated.
Posterior femora of male toothed.
Tooth of femora long, hind tibiæ arcuate.....**Hubbardi** n. sp.
Tooth short and near the middle of femur. Tibiæ straight.
Form oblong-oval, not broader in front, hind angles of thorax very obtuse or rounded.
Anterior tibiæ of male sinuate within; punctuation of thorax dense and conspicuous. Femoral tooth very small...**dentatum** Lec.
Anterior tibiæ of male arcuate; punctuation of thorax rather sparse and inconspicuous. Femoral tooth very evident...**celatum** n. sp.
Form oval, broader in front, hind angles of thorax distinct almost rectangular.
Anterior tibiæ of male sinuate within; punctuation of thorax fine and rather sparse. Femoral tooth small.....**putum** n. sp.
Posterior femora of male without trace of tooth.
Hind angles of thorax distinct, sometimes acutely rectangular.
Body evidently broader in front, the elytra rather rapidly narrowing to apex with feebly arcuate sides as in *Ptomaphagus*.
Surface subopaque, densely punctured, sutural stria entire; larger species (.10—.12 inch).....**magnicolle** Mann.
Surface rather shining, thorax sparsely punctate, sutural stria evanescent near base, smaller species .06 inch.....**pusillum** n. sp.
Body oblong-oval, not wider in front, elytra behind the humeri usually wider than the thorax.
Thorax densely punctured with fine equal punctures.
Middle and hind tarsi compressed and distinctly shorter than the tibiæ, species larger .10—.12 inch.....**clavatum** Mann.
Middle and hind tarsi slender, very nearly as long as the tibiæ, species smaller .08 inch.....**inerme** Mann.
Thorax with coarse rather deep punctures with finer ones in the intervals.....**thoracicum** n. sp.
Hind angles of thorax rounded.
Punctuation rather coarse and submuricate, form more convex and more obtuse in front; color piceous, legs rufous....**asperatum** n. sp.
Punctuation fine, form depressed, oblong; color brown to rufous.
nevadense n. sp.

C. bidentatum Sahlb.—Oblong-oval, a little more obtuse in front, piceous or castaneous, finely pubescent. Head coarsely punctured. Antennæ attaining the middle of the thorax, rufous at base, club piceous. Thorax about one-fourth wider at base than long, sides gradually arcuately narrowing to apex, base truncate, hind angles obtuse, surface very densely punctate. Elytra as wide at base as the thorax, sides gradually arcuately narrowing to apex, sutural stria finely impressed, arcuate at middle, attaining both base and apex, surface very faintly substriate, densely punctured, similar to the thorax with the punctures slightly muricate, each bearing a short fine hair. Body beneath densely punctulate but more finely than above. Femora more sparsely punctate. Length .10—.12 inch; 2.5—3 mm.

Male.—Anterior tibia slender, straight, squarely truncate at tip, outer edge extremely finely spinulose, the spurs short, stout, the anterior slightly lobed at the sides, the tarsus slender, filiform and glabrous. Middle tibiæ straight,

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a little broader than the anterior and distinctly spinulose externally, the spurs slightly dilated from middle to base, tarsus distinctly compressed. Posterior femur slightly crenulate along the lower edge and with a small acute tooth near the tip arising from the outer edge, the tibia arcuate and with an obtuse tooth near the base, the spurs slender at tip, rather suddenly broader at basal half, tarsi slightly compressed. (Pl. VI, fig. 10).

Female.—Unknown in nature. The posterior femora are simple, (Tournier).

In this species the antennal club may properly be called four-jointed, the terminal joint rounded or oval at tip. The second and third joints are equal in length the latter a little more slender. I have not made any direct comparison of our specimens with the European species to which this is referred, but I have no doubt of their identity from the excellent figures given by Tournier.

Two ♂ specimens, Massachusetts, (Blanchard), New York, (Ulke).

C. paradoxum n. sp.—Oblong-oval, very little more obtuse in front, piceous, very feebly shining, sparsely pubescent, legs paler. Head densely punctured. Antennæ piceous, paler at base, attaining the middle of the thorax, club four-jointed. Thorax and elytra as in *bidentatum*. Body beneath moderately densely punctulate. Length .08 inch; 2 mm.

Male.—Anterior tibiæ very little broader to the tip, the outer apical angle distinct, the spurs slightly lobed at the sides, the tarsi filiform. Posterior femora with a slight angulation near the apex and obsoletely crenulate at middle, the tibiæ very slightly arcuate and at base a little more rapidly narrowed presenting a slight angle. (Pl. VI, fig. 14).

Female.—Unknown.

This species might readily be mistaken for *bidentatum* or *dentatum* by its superficial characters, the sexual character of the male will distinguish it from either.

Pennsylvania and District of Columbia, (Ulke).

C. Hubbardi n. sp.—Closely resembling *dentatum* in form and color but a little more coarsely pubescent. Thorax and elytra very nearly equally punctate and somewhat more coarsely than in *dentatum*. Antennal club distinctly five-jointed, the seventh joint being also broad. Length .10 inch; 2.5 mm.

Male.—Anterior tibiæ gradually broader to tip, inner margin straight, the outer apical angle slightly acute, spurs as in *dentatum*, tarsi rather broadly dilated. Posterior tibiæ slightly arcuate, the femora with a slender tooth of variable length arising from the inner margin near the tip, the tooth thin but band-like with one of the terminal angles slightly prolonged. Middle and posterior tarsi slightly compressed. (Pl. VI, fig. 13).

Female.—Unknown.

I know of no means by which this species may be distinguished from *dentatum* except by the sexual characters of the male. It is highly probable that the female will have a slight tooth on the femur near the tip. The punctuation here is rather coarser than in *dentatum*

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and by that means a little experience will enable one to separate them, but this is difficult to communicate by description.

Occurs in Michigan, Tennessee and District of Columbia.

C. dentatum Lec.—Oblong-oval, very little more obtuse in front, piceous to rufous, surface finely pubescent. Head rather coarsely and densely punctured. Antennæ attaining the middle of the thorax, basal joints rufous, club darker, the latter of four joints the terminal narrower and obtuse at tip. Thorax about one-fourth wider at base than long, sides arcuate, gradually narrowing to the front, base truncate, hind angles rounded, surface very densely punctate. Elytra as wide as the thorax at base, arcuately narrowing to the apex, sutural stria finely impressed becoming obsolete near the base, surface densely submuricately punctate, punctures less dense and a little coarser than those of the thorax. Body beneath moderately densely punctulate. Legs more sparsely punctulate. Length .06—.08 inch; 1.5—2 mm.

Male.—Anterior tarsi dilated, the tibiæ broader at tip, slightly sinuate on the inner side, the outer apical angle acute, the spurs slightly lobed at the sides. Posterior femora with a small acute tooth at middle arising from the anterior margin, the tibiæ straight and simple. The spurs of the middle and posterior tibiæ are slightly broader from base to middle, the tarsi slender but slightly compressed. (Pl. VI, fig. 11).

Female.—Tarsi and spurs simple. Posterior femora without tooth. Anterior tibiæ slender. (Cab. Ulke).

On the elytra may be seen very faint traces of striæ near the base, and in the female above-mentioned the sutural stria extends to basal margin but is extremely fine.

Occurs in New York and Pennsylvania.

C. celatum n. sp.—Oblong-oval, not broader in front, subdepressed, ferruginous, feebly shining, sparsely pubescent. Head finely punctulate. Antennæ paler at base, the club darker, the latter four-jointed, the terminal joint longer than the preceding, obtuse at tip and paler. Thorax nearly one-half wider than long, sides moderately arcuate and gradually narrowed to tip, base truncate, hind angles rounded, surface finely but rather sparsely punctulate. Elytra as wide as the thorax, sides moderately arcuate, sutural stria entire but very fine near the base, surface moderately densely punctured, more densely and a little more coarsely than the thorax. Abdomen finely not densely punctulate, sides of metasternum more coarsely punctate. Length .08 inch; 2 mm.

Male.—Anterior tibia rather strongly arcuate, broader at tip, the spurs lobed at the sides, the tarsi dilated. Middle and posterior tibiæ straight, the tarsi slender, slightly compressed. Posterior femur with a triangular acute tooth near the middle arising from the inner edge. (Pl. VI, fig. 12).

Female.—Unknown.

This species resembles *nevadense* of the next series so greatly that it might easily be placed with it without detection except by the male characters. It also resembles *dentatum* in form but is more depressed. This species seems to be our equivalent for the European *Delarouzei*.

One specimen, western Nevada, (Morrison).

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C. putum n. sp.—Oval, slightly oblong, evidently broader in front, brownish or ferruginous, moderately shining, finely pubescent. Head rather coarsely, moderately densely punctured. Antennæ pale, attaining the middle of the thorax, club four-jointed, the terminal joint as long as the preceding and obtuse. Thorax one-half wider than long, sides arcuately narrowing to the front, base truncate, hind angles distinct but obtuse, surface moderately shining, finely not densely punctulate. Elytra as wide at base as thorax, sides arcuately narrowing to apex, surface moderately densely submuricately punctate, sutural stria gradually evanescent near the base. Abdomen sparsely punctulate. Metasternum sparsely but more coarsely punctate. Length .08 inch, nearly; 2 mm.

Male.—Anterior tibiæ gradually broader to tip, the inner edge slightly sinuate, the spur lobed at the sides, the tarsus dilated. Middle and posterior tibiæ straight, their tarsi slender, nearly as long as the tibiæ and slightly compressed. Posterior femur with a very minute tooth at middle arising from the outer edge.

Female.—Unknown.

This species possesses the sexual characters of *dentatum*, but differs in its outward form and the sculpture of the surface. It however reproduces exactly the superficial characters of *pusillum*, but this has no tooth on the femur of the male.

Pennsylvania and District of Columbia.

C. magnicolle Mann.—Oval, slightly oblong, more obtuse in front, piceous opaque, finely pubescent. Head rather shining, moderately densely punctulate. Antennæ passing a little the middle of the thorax, pale brownish, terminal joint oval at tip, as long as the preceding and somewhat paler, club gradually formed, five-jointed. Thorax large, about one-fourth wider than long, a little broader in front of base, sides arcuate and gradually narrowed to the front, base truncate, hind angles rectangular, surface densely punctulate. Elytra a little narrower than the thorax, gradually narrowed toward apex, sides very feebly arcuate, sutural stria entire, surface not more densely punctured than the thorax but a little more roughly. Abdomen very densely punctulate. Length .10—.12 inch; 2—2.5 mm. (Pl. VI, fig. 8).

Male.—Anterior tibiæ gradually broader to tip, the inner margin slightly sinuate, the outer apical angle obliquely truncate, the spurs lobed at the sides, the tarsi rather widely dilated. Middle and posterior tibiæ straight, the tarsi slender, slightly compressed and shorter than the tibiæ. Posterior femur without tooth.

Female.—Unknown.

This species from its form and size can hardly be mistaken for any other. Smaller specimens have a slight resemblance to *clavatus*, but in these the anterior tibiæ of the male are not sinuate within and the outer apical angle not truncate.

Mannerheim describes the posterior angles of the thorax as obtuse but when a distinct view is obtained they are truly rectangular.

Occurs at Alaska, Vancouver, Lake Superior, Michigan and Pennsylvania.

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C. pusillum n. sp.—Form, color and sculpture of *putum*, of somewhat smaller size and differing only in the sexual characters of the male.

Male.—Characters of *putum* except that the posterior femora are without tooth.

Female.—Unknown.

There is a specimen from Colorado in the cabinet of Dr. Leconte, differing from the others in having the sutural stria entire, but it agrees so closely in all else that I prefer to refer it here. It seems to be a female and differs from the male in the absence of anterior tarsal dilatation.

Maryland, Virginia, District of Columbia and Colorado.

C. clavatum Mann.—Oblong-oval, equally narrowed at either end, broadest at the middle of the entire length, piceous or brownish, feebly shining, finely pubescent. Head moderately densely punctured. Antennæ slightly passing the middle of the thorax, basal joints rufous, club moderately stout, five-jointed, the terminal obtuse at tip. Thorax about one-fourth wider than long, sides arcuately narrowing to apex, base truncate, hind angles rectangular, surface densely punctulate. Elytra as wide at base as the thorax, sides arcuate and a little broader behind the humeri, sutural stria evanescent near the base, surface not more densely punctured than the thorax but submuricately. Abdomen moderately densely punctate, metasternum more coarsely but sparsely. Length .10—.12 inch; 2.5—3 mm.

Male.—Anterior tibiæ gradually broader to tip, not sinuate within, the tip truncate, the outer apical angle distinct, spurs lobed at the sides, tarsi dilated. Middle tibiæ straight. Posterior tibiæ slightly arcuate, the tarsi compressed, decidedly shorter than the tibia. Posterior femur without tooth.

Female.—Unknown.

This must be classed among our larger species and is known by the sexual characters and form of body.

Occurs in Alaska, Vancouver, California, Nevada and Colorado.

C. inerme Mann.—Oblong-oval, not broader in front, elytra a little wider behind the humeri than the thorax, piceous, feebly shining, finely pubescent. Head rather coarsely, not densely punctate. Antennæ attaining the middle of the thorax, paler at base, club four-jointed, the terminal joint obtuse. Thorax about one-fourth wider than long, sides arcuate, gradually narrowing to the front, base truncate, hind angles rectangular, surface moderately shining, densely punctulate. Elytra as wide at base as the thorax, slightly broader behind the humeri, sides feebly arcuate, sutural stria finely impressed, evanescent near the base, surface a little less densely punctured than the thorax, the punctuation a little rougher. Body beneath moderately densely punctate. Length .08 inch; 2 mm.

Male.—Anterior tibia gradually broader, not sinuate within, the outer apical angle distinct, the spurs lobed at the side, the tarsus dilated. Middle and posterior tibiæ straight, the tarsi rather slender and but little shorter than the tibia. Posterior femur without tooth.

Female.—Anterior tibia slender, the spurs slender, the tarsus filiform. Otherwise as in the male.

Occurs in Alaska, California and Colorado.

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C. thoracicum n. sp.—Oblong, moderately elongate, not broader in front, reddish-brown, elytra with a common central cloud, surface slightly shining, sparsely pubescent. Head rather coarsely, moderately densely punctate. Antennæ attaining the middle of the thorax, ferruginous, club darker, four-jointed with the terminal joint obtuse and paler. Thorax one-fourth wider than long, broader in front of base, sides arcuate, hind angles sharply rectangular, surface with coarse, moderately deep simple punctures not densely placed, with finer punctures in the intervals. Elytra a little wider between the humeri than the base of the thorax, broader behind, sides moderately arcuate, sutural stria entire but indistinct near the base, surface with a faint evidence of a strial arrangement of larger punctures near the base and sides, the intervals a little more finely but not very densely punctate. Abdomen moderately densely punctured, metasternum coarsely but sparsely punctate. Length .10 inch; 2.5 mm. (Pl. VI, fig. 7).

Male.—Anterior tibiæ straight, the outer apical angle obliquely truncate, the spurs lobed at the side, the tarsi dilated. Middle and hind tibiæ straight, the tarsi slender, slightly compressed. Posterior femur without tooth.

Female.—The anterior tibiæ are more slender than the male, the outer apical angle obliquely truncate, the spurs slender, the tarsi filiform. Otherwise as in the male.

This species, independently of its sexual characters, is easily known by the base of thorax being evidently narrower than the elytra at base, and the surface punctured after the manner of *Heteroderes*.

Two specimens, one ♂, Missouri; ♀, District of Columbia, (Ulke).

C. asperatum n. sp.—Oblong-oval, broader in front, moderately convex, piceous, slightly shining, legs rufous, surface sparsely coarsely pubescent. Head not densely punctate. Antennæ piceous paler at base, attaining the middle of thorax, club four-jointed the terminal joint longer than the tenth, oval at tip and paler. Thorax one-fourth wider than long, sides feebly arcuate and narrowed to the front, base truncate, hind angles broadly rounded, surface moderately densely submuricately punctured at the base and sides, more sparsely at the middle and front of disc. Elytra a little narrower at base than the thorax, sides feebly arcuate and gradually narrowed to tip, sutural stria moderately deep and entire, surface moderately densely and rather coarsely submuricately punctured, presenting a rough appearance. Abdomen not densely punctured, metasternum at sides coarsely punctured. Length .08 inch; 2 mm.

Male.—Anterior tibiæ gradually broader, the outer apical angle distinct, the spurs lobed at the sides, the tarsi dilated. Middle and posterior tibiæ straight, the tarsi slender and nearly as long as the tibiæ. Posterior femur without tooth.

Female.—Anterior tibiæ more slender, the spurs simple, the tarsi filiform. Otherwise as in the male.

This species is nearly of the form and size of *putum* but is always piceous, the surface more roughly sculptured and the hind angles of thorax more rounded.

Occurs in Michigan, Canada, Illinois and District of Columbia.

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C. nevadense n. sp.—Oblong-oval, feebly convex, not broader in front, piceous to ferruginous, finely pubescent. Head rather finely punctured. Antennæ ferruginous, club darker, attaining the middle of the thorax, the club four-jointed, the terminal joint a little larger than the tenth, obtuse at tip and paler. Thorax one-half wider than long, sides moderately arcuate and gradually narrowed to the front, base truncate, hind angles rounded, surface finely and not very densely punctulate. Elytra as wide as the thorax, sides moderately arcuate and gradually narrowed to apex, sutural stria entire, finely impressed, surface moderately densely punctured and a very little more coarsely than the thorax. Abdomen finely but not densely punctulate, metasternum at sides coarsely punctate. Length .06— 08 inch; 1.5—2 mm.

Male.—Anterior tibiæ straight very little broader at tip, the spurs lobed at the side, the tarsi slightly dilated. Middle and posterior tibiæ straight, the tarsi slender, slightly compressed. Posterior femora without tooth.

Female.—Anterior tibiæ straight, spurs simple, tarsi filiform. Otherwise as in the male.

This species bears such a very close superficial resemblance to *celatum* before described, that it is impossible to distinguish them except by the male characters which are fortunately very evident.

Occurs in western Nevada, (Morrison).

Tribe V.—*Anisotomini.*

Anterior coxæ conical, prominent, contiguous, with trochantin, the cavities strongly angulate externally and narrowly closed behind. Middle coxæ always separated but in some narrowly. Posterior coxæ contiguous. Abdomen with six segments subequal in length or with the first a little longer, the sixth usually very short. Antennæ variable in the number of the joints either ten or eleven, club variable of 3—4 or five joints; arising under a slight frontal margin in all of the genera.

By a comparison of the above formula with that of the Silphini it will be seen that they differ only in the structure of the prothorax beneath. In all preceding reviews of the tribe the structure of the posterior trochanters has been made use of in a manner which seems entirely false and misleading. I do not find any constant difference between the two tribes in the form of the trochanter, on the contrary there are forms in each which if rigorously interpreted would remove their possessors from the respective tribes. In proof I need only cite Pteroloma of the Silphini and certain Hydnobius in the present tribe. Taking the tribe Silphini as recognized by Lacordaire and his followers, the entire series which I have here separated as Cholevini do not differ materially from the present tribe in the form of the trochanter, but are quite at variance with that found in the larger Silphini.

As a rule any part of an insect which exhibits a decided tendency to vary, not only between species but also in the two sexes, is an

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extremely unsafe one to use in any system of classification beyond the separation of species.

The separation of the genera of the tribe as found in the books is by no means happy and in some respects apt to seriously mislead. The tables for the greater part either begin with dividing the genera in two series based on the similarity of the tarsi in the two sexes or their dissimilarity, or else the contractile power is taken as the starting point, these systems are sometimes varied by first excluding those genera with five-jointed tarsi on all the feet. It is certainly true that, taken as a whole, those genera with the tarsi similar in the two sexes are not contractile, while those with dissimilar tarsi are contractile, often very much so. Unfortunately we find that both Cyrtusa and Colenis are more contractile than some Liodes or even Agathidium and the character at once fails. The similarity or not of the tarsi in the sexes is a much better means of separation than the other, unfortunately it requires both sexes for positive determination, as a female Colenis is equally well placed in either series if the male is unknown.

The presence or absence of an antennal groove which has done such good service in other parts of the Clavicorn series is here a character of very great value. Reaching its highest development in Agathidium and Liodes, the groove becomes feebler in the other genera but still well marked even in Cyrtusa where a distinct ridge exists within and behind the eye beneath, and the inner limit of the groove is formed by an elevation of the edge of the buccal cavity. Although the existence of the groove has been casually mentioned by various authors, its importance as a means of dividing the genera has not been recognized. By reference to the table it will be found that the genera with similar and dissimilar tarsi in the sexes are rather sharply separated, Cyrtusa being the only exceptional case and this seems to me no detriment to the value of the character inasmuch as it fixes that genus as a very natural link between the two series of genera, a fact which seems admitted by the position in which it is placed.

As in Necrophorus a portion of the clypeus is membranous, so in the present tribe we find a tendency to the same structure. Triarthron has the clypeus entirely membranous, Hydnobius partly so, while in other genera the anterior border is slightly membranous or the entire clypeus may be corneous. The suture between the clypeus and front is rarely well marked, usually entirely obliterated and not visible except the front be slightly translucent.

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Of the fifteen genera known in the tribe three only are found outside of Europe and North America (*Stereus* Woll., from Madeira, *Dietta* Sharp, New Zealand, and *Scotocryptus* Girard, Brazil), the remaining twelve are thus distributed: Peculiar to Europe *Agaricophagus* and *Amphicyllis*, peculiar to America *Anogdus*, *Isoplastus* and *Aglyptus*, leaving seven common to the two countries.

The ten genera occurring in our fauna are distributed in the following manner: Peculiar to the Pacific region *Triarthron*, common to the Atlantic and Pacific regions *Hydnobius*, *Anisotoma*, *Liodes* and *Agathidium*, leaving five occurring only in the Atlantic region.

In the following table no mention is made of the contractile power and any sexual difference in the tarsi has secondary mention, this is for reasons already explained. In any cabinet arrangement Liodes should be placed next in front of Agathidium, it is placed in the position it occupies in the table on account of the antennal structure approaching more closely the genera which precede it than those which follow.

A.—Head without antennal grooves beneath.
Posterior tarsi 5-jointed. Mesosternum not carinate.
Antennal club 3-jointed.
Tibiæ slender, not strongly spinulose.....**Triarthron.**
Tibiæ dilated and strongly spinulose.....**Stereus.**
Antennal club 5-jointed.....**Hydnobius.**
Antennal club 4-jointed.
Tarsi 4—5—5. .....**Dietta.**
Posterior tarsi with a less number than five joints. Mesosternum carinate.
Tarsi with joints 5—5—4 in both sexes.
Antennal club 4-jointed.....**Anogdus.**
Antennal club 5-jointed.....**Anisotoma.**
Tarsi 5—4—4 in both sexes.
Antennal club elongate, loose, 3-jointed.....**Colenis.**
Tarsi 4—3—3 in both sexes.
Antennal club 5-jointed.....**Agaricophagus.**

B.—Head with distinctly limited antennal grooves.
Antennal club 5-jointed, elongate. Tarsi dissimilar in the sexes...**Liodes.**
Antennal club 4-jointed.
Antennæ apparently 10-jointed. Tarsi similar in the sexes.....**Cyrtusa.**
Antennæ distinctly 11-jointed. Tarsi dissimilar ♂ and ♀ ...**Amphicyllis.**
Antennal club 3-jointed. Tarsi dissimilar in the sexes.
Antennæ 10-jointed.....**Isoplastus.**
Antennæ 11-jointed.
Posterior tarsi 4-jointed in both sexes, the mesosternum not carinate between the coxæ.....**Agathidium.**
Posterior tarsi 3-jointed, mesosternum strongly carinate.....**Aglyptus.**

The tribe as here constituted is composed of the same genera as in those authors since the time of Lacordaire, he included Clambus

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which has been very properly removed and with several other genera since indicated constitutes the tribe Clambini.

Of the genera of the second division Aglyptus alone has the mesosternum truly carinate. In some Agathidium the anterior flat portion of the mesosternum is obtusely carinate but not between the coxæ. All the others have a plain mesosternum.

From the characters given by Wollaston it seemed that *Stereus* should be placed near Cyrtusa or Isoplastus, but I am informed by Mr. Charles O. Waterhouse of the British Museum, that the tarsi are actually five-jointed on all the feet in both sexes, and that there is no trace of an antennal groove. It seems however to bear the same relation to Triarthron that *Anisotoma obsoleta* does to the other species. I must here acknowledge the courtesy of Mr. Waterhouse in promptly replying to my inquiries, thereby enabling me, even at a late moment, to insert the present paragraph.

The genus *Dietta* Sharp, (Ent. Mo. Mag. xiii, p. 78), appears to be very closely allied in its more important characters to *Anogdus* Lec., but from the description there are certain characters of such an anomalous nature that a second examination seems necessary. The anterior tarsi are said to be four-jointed, the middle and posterior five. The presence of a less number of joints in the anterior tarsi than in the two following is altogether without parallel in the Anisotomini. The "side piece (epimeron) of the prothorax produced behind the coxæ, but extremely slender, so as to be only a spine—the two not meeting in the middle," is I suspect one of those cases in which the eyes have been deceived, as all the Anisotomini have the anterior coxæ closed behind by the epimera, a fact which is sometimes demonstrable only by the separation of the thorax from the body. The occurrence of only five ventral segments in the Anisotomini is not remarkable as the sixth is often retracted in various genera. The membranaceous clypeus is also observed in Anogdus, Hydnobius and Triarthron, while the antennal structure completely reproduces the former genus. I give place to the genus in the above table on the faith of the characters given by Dr. Sharp, and I have very little doubt that it will prove to be an osculant form between Hydnobius and Anogdus.

At the time p. 224 was written I had entirely overlooked *Dietta* until my attention was called to it by Dr. Sharp. It should therefore be added in its proper place and the numbers changed accordingly.

I am unable to place *Scotocryptus*, the characters given by the author being entirely insufficient, but it seems allied to Aglyptus.

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TRIARTHRON Mærkel.

Head quadrangular, front emarginate, clypeus membranous, labrum bilobed, mandibles not prominent, dentate at middle of inner edge, eyes broadly oval, transverse to the axis of the head; beneath without antennal grooves, maxillary palpi with the second joint moderate in length, third short, fourth nearly as long as second, cylindrical, somewhat acuminate at tip. Antennæ nearly as long as the head and thorax, eleven-jointed, first joint short, stout, second half as long, 3—8 gradually shorter and slightly broader, last three joints forming an oblong mass the first two joints of which are broader than long, the last longer, oval and acute at tip. Thorax transverse, feebly emarginate in front. Prosternum short in front of the coxæ, the cavities strongly angulate externally and narrowly closed posteriorly. Middle coxæ slightly separated, the mesosternum oblique, not carinate. Metasternum moderate in length, the side pieces visible. Abdomen with six segments, the last small. Legs moderately robust, femora canaliculate beneath, tibiæ ciliate and feebly spinulose. Tarsi five-jointed in both sexes, joints 1—4 gradually decreasing in length, fifth longer. Tibial spurs stout, moderate in length.

T. Lecontei Horn.—Oblong-oval, ferruginous, moderately shining. Head sparsely punctulate. Thorax twice as wide as long, apex feebly emarginate, base arcuate, sides gradually arcuately narrowing from base to apex, hind angles very obtuse, surface sparsely punctulate. Elytra a little wider than the thorax, humeri obtuse, sides near base nearly straight, gradually narrowed at apical third, disc with eight entire striæ of moderately closely placed punctures, the intervals flat, finely sparsely punctulate, the alternate intervals with distant coarser punctures. Body beneath punctate, sparsely pubescent. Length .12—.14 inch; 3—3.5 mm. (Pl. VI, fig. 15).

Male.—Anterior and middle tarsi with the first four joints moderately dilated. Posterior femora deeply canaliculate at apex, the outer edge serrulate its entire length, the inner edge suddenly emarginate near the base and beyond the emargination with three equal but not large teeth. (Pl. VI, fig. 15 a).

Female.—Tarsi slender. Posterior femora more slender than the male, simple without serrations.

Three specimens seen, two from Oregon and one from the high Sierras east of Visalia, California.

HYDNOBIUS Schmidt.

Head short, eyes round, not prominent, clypeus small feebly emarginate at middle or even slightly membranous. Labrum small usually deeply bilobed, rarely broadly emarginate. Mandibles moderately prominent, toothed at the middle of the inner edge. Maxillary palpi moderate in length, first joint very short, second rather long, obconical, third half the length of the second, fourth nearly as long as the preceding two. Antennæ rarely passing the middle of the thorax, eleven-jointed, first joint obconical, stout, second much shorter but as stout, 3—6 gradually decreasing in length but becoming broader, joints 7—11 forming an abrupt elongate club nearly as long as the rest of the antenna, the eighth joint smaller than the seventh or ninth; antennæ not received in grooves on the under side of the head. Prosternum short in front of the coxæ, the coxæ are conical-transverse, with trochantin, contiguous, the cavities angulate externally and narrowly closed behind. Mesosternum oblique, moderately separating the coxæ, not carinate. Metasternum moderate in length its side

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pieces not concealed. Posterior coxæ contiguous. Abdomen with six segments. Legs moderate, femora stout, tibiæ spinulose externally and with moderate spurs, stouter in the male. Tarsi five-jointed on all the feet in both sexes, joints 1—4 gradually decreasing in length, fifth longer.

The only exception to any of the above characters is found in *Matthewsii*, in which the third joint of the antenna is longer than usual and is a little longer than the next two together.

Our species although not numerous seem to equal the entire number known from other countries, and are readily known by their male characters. They may be arranged as follows:

Labrum broadly emarginate. Posterior femora not differing in the sexes, the male not toothed.

Third joint of antennæ as long as the next two; intervals of elytra moderately densely punctate or wrinkled..... **Matthewsii** Cr.

Third joint not as long as the next two; intervals of elytra with a single row of fine punctures and finely obliquely strigose...**strigilatus** n. sp.

Labrum deeply bilobed. Posterior femora dissimilar in the sexes, always broader and stouter in the male and usually toothed.

Posterior femur ♂ distinctly toothed.

Tooth of femur longer than wide, obliquely truncate; punctuation of elytra confused.....**longulus** Lec.

Tooth of femur as broad as long, obliquely truncate; punctuation of elytra deep and substriate.....**substriatus** Lec.

Tooth of femur triangular, acute at tip; punctuation of elytra striate but feeble.....**latidens** Lec.

Posterior femur broad, oval, without tooth.

Punctuation of elytra substriate and coarse.....**obtusus** Lec.

H. Matthewsii Crotch.—Oblong, castaneous or piceo-rufous, shining. Labrum broadly emarginate. Head sparsely punctate, vertex with slight impression. Thorax broader than long, somewhat variable in shape, either slightly narrowed in front or not, apex and base truncate, sides moderately arcuate, hind angles distinct but obtuse, surface finely punctulate, the punctures coarser and sparser along the base. Elytra scarcely wider than the thorax, oblong-oval, with eight entire striæ of fine and closely placed punctures, sutural stria deeper, intervals flat finely punctulate transversely wrinkled, the alternate intervals with coarser distant punctures. Body beneath sparsely punctate, slightly pubescent. Legs paler. Length .14—.24 inch; 3.5—6 mm. (Pl. VI, fig. 16).

Male.—Anterior and middle tarsi very slightly dilated, the anterior tibiæ broader and serrulate, the femora stouter than in the female, and the posterior more deeply canaliculate.

Female.—Tarsi slender. Anterior tibiæ spinulose less dilated than the male. Tibial spurs, especially those of the anterior tibiæ much smaller.

In several females before me the mandibles have a distinct tooth on the anterior edge beneath, less developed in the right mandible. This is however very variable and in one specimen barely distinct.

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It is curious that in this our largest species the sexual characters of the male should be so feeble, all the other species having well marked teeth or dilatations of the posterior femora. The elytral sculpture is also less marked in the male, the punctures of the striæ being always coarser in the female.

Twelve specimens examined from Vancouver and Washington Territory.

Agathidium pallidum Say, may be this species.

H. strigilatus n. sp.—Oblong, pale castaneous, shining. Head very sparsely punctulate, labrum scarcely emarginate. Thorax nearly twice as wide as long, narrowed in front, widest in front of base, apex feebly emarginate, base arcuate, sides arcuate, hind angles distinct but obtuse, surface finely and sparsely punctulate and very minutely strigose, basal marginal line fine, nearly obliterated at middle. Elytra not wider than the thorax, sides moderately arcuate and gradually narrowed from the base, surface with striæ of extremely fine punctures, the intervals flat and finely obliquely strigose, the alternate intervals very distantly finely punctulate. Body beneath very sparsely punctulate. Length .08—.10 inch; 2—2.5 mm.

Male.—Anterior and middle tarsi slightly dilated, anterior femur with a slender spine at the middle beneath. Posterior femur simple. (Pl. VI, fig. 18).

Female.—Tarsi slender. Femora all simple.

By its feebly emarginate labrum, strigose elytra and simple hind femora in both sexes, this species is evidently allied to *Matthewsii*, although widely differing in size and other sexual characters.

Three specimens, two ♂, one ♀, Nevada and Vancouver.

H. longulus Lec.—Form oblong, castaneous, shining. Head sparsely punctate, labrum bilobed. Thorax twice as wide as long, widest at middle, base and apex equal, sides moderately arcuate, apex feebly emarginate, base broadly arcuate, hind angles rounded, disc rather coarsely but not densely punctured, a finely impressed basal line. Elytra a little wider than the thorax, oblong-oval, sutural stria moderately impressed behind the middle and continued to base by punctures, surface coarsely punctate, the punctures moderately dense and with a faint tendency to a strial arrangement. Body beneath sparsely punctate. Length .14 inch; 3.5 mm.

Male.—Anterior and middle tarsi moderately dilated, the posterior femur with a long tooth on the outer side near the knee obliquely truncate at tip. (Pl. VI, fig. 20).

Female.—Tarsi slender, posterior femur more slender than the male and without tooth.

This species has a more coarsely punctured thorax than any other in our fauna, and the sculpture of elytra in addition will serve to distinguish it. The male will be easily separated. With this I unite *longidens* Lec., as I am unable to find any difference.

Occurs in Colorado, California, British Columbia and Oregon, four specimens examined.

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H. substriatus Lec.—Oval, slightly oblong, piceous or castaneous, shining. Head sparsely punctate, labrum bilobed. Thorax less than twice as wide as long, narrowed in front, widest in front of base, sides arcuate, hind angles rounded, surface sparsely punctate. Elytra oval, slightly oblong, sides arcuate and gradually narrowed from the base, surface with striæ of moderately coarse closely placed punctures, the sutural stria deeper posteriorly, intervals flat with punctures nearly as coarse as those of the striæ but less regular. Body beneath sparsely punctate. Length .08—.10 inch; 2—2.5 mm.

Male.—Anterior and middle tarsi slightly dilated, posterior femora stout, with a broad tooth near the distal end which is emarginate on the distal edge and obliquely truncate at tip, posterior tibia straight. (Pl. VI, fig. 19).

Female.—Tarsi slender, posterior femora slender without tooth.

Superficially this species resembles *obtusus* and males alone can be distinguished with certainty. With it I have united *curvidens* which does not differ from undoubted males of this species.

Occurs from Nova Scotia to Colorado, through New York, Michigan, and Canada. Nine specimens examined.

H. latidens Lec.—Oblong-oval, brownish or castaneous, shining. Head very sparsely punctate. Thorax nearly twice as wide as long, narrowed in front, widest in front of base, sides arcuate, apex feebly emarginate, base truncate, hind angles distinct but obtuse, surface shining, very sparsely punctate. Elytra oval slightly oblong, sides moderately arcuate, gradually narrowing to base, surface with rows of moderately regular punctures, those of the striæ proper and the intervals equal and often with fine oblique lines connecting the punctures, sutural stria rather deeply impressed and continued by rather deeper punctures to the base. Body beneath very sparsely punctate. Length .06—.08 inch; 1.5—2 mm.

Male.—Anterior and middle tarsi very little dilated, posterior tibiæ slightly arcuate near its base, the femur stout with a broad triangular tooth, acute at its summit situated near the distal end. (Pl. VI, fig. 21).

Female.—Tarsi simple. Hind femur slender without tooth.

This species differs in its surface sculpture being far less marked and less dense. The sexual characters are quite distinct and seem naturally intermediate between those of *substriatus* and *obtusus*.

Occurs from Anticosti, Canada to Col. and Cal. Four specimens.

H. obtusus Lec.—Oblong-oval, castaneous brown, moderately shining. Head sparsely punctate, labrum bilobed. Thorax twice as wide as long, widest at middle, apex a little narrower than base, the former feebly emarginate, the latter arcuate, hind angles rounded, surface not densely punctate, a fine subbasal line. Elytra very little wider than the thorax, oblong-oval, sutural stria moderately impressed behind the middle continued by punctures to base, surface with eight striæ of rather coarse punctures, the intervals 2—4—6 with fine punctures closely placed, 3—5—7 with coarse punctures distantly placed. Body beneath sparsely punctate. Length .08—.10 inch; 2—2.5 mm.

Male.—Anterior and middle tarsi moderately dilated, posterior femur broad and stout, posterior tibiæ arcuate. (Pl. VI, fig. 17).

Female.—Tarsi slender, posterior femur much less dilated, the tibia straight.

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This species bears considerable resemblance to *substriatus* and the male characters are the only reliable means of separation.

Occurs in Colorado and British Columbia, four specimens.

ANOGDUS Lec.

Head short, not prolonged in front of the eyes, clypeus short, broadly emarginate, labrum short, feebly emarginate. Mandibles feebly prominent, dentate on the inner margin. Maxillary palpi short, last joint cylindrical slightly acute at tip. Eyes round moderately prominent. Antennæ ten-jointed arising under a slight frontal margin, first joint short, stout, second a little more slender and nearly as long, third less stout and shorter than second, 4—6 short gradually broader, 7—10 forming a very abrupt oblong club a little longer than the preceding joints, 7—8—9 short, transverse, more than twice as wide as long, ten narrower, short, truncate at tip; head beneath without antennal grooves. Prosternum in front of coxæ short, the cavities transverse and closed behind. Mesosternum separating the anterior coxæ, vertical between them and finely carinate. Metasternum rather short, the side pieces narrowly visible, posterior coxæ contiguous. Abdomen with six segments. Legs short, stout, tibiæ spinulose externally. Tarsi slender with joints 5—5—4. Body short, stout, not contractile.

This genus is closely allied to Anisotoma and bears to it the same relation on one side that Cyrtusa does on the other. After a careful manipulation of the unique before me I am unable to find more than ten joints to the antennæ, the eighth joint which is so feebly visible in Cyrtusa appears to be entirely wanting here.

A. capitatus Lec.—Rather broadly oval, brownish, ferruginous, moderately shining. Head rather coarsely punctate. Thorax short transverse, nearly three times as wide as long, slightly narrowed in front, apex emarginate, sides and base arcuate, hind angles broadly rounded, surface rather coarsely punctate, sparsely on the disc, more densely at the sides. Elytra a little wider than the thorax and very little longer than wide, oval, convex, surface with eight rather deeply impressed striæ, the striæ crenately punctured, intervals convex and punctulate. Body beneath and femora sparsely punctate. Length .10 inch; 2.5 mm. (Pl. VI, fig. 22).

The unique specimen, from Florida, before me appears to be a female, its anterior tarsi are however wanting but the femora present no sexual characters. The minute tooth observed on the hind thighs (Proc. Acad. 1866, p. 369), proves to be a deception.

ANISOTOMA Illig.

Head short, not prolonged in front of the eyes, without antennal grooves beneath, clypeus truncate. Labrum small, emarginate or sub-bilobed. Mandibles short robust, simple at tip, dentate at middle (except in *ecarinata*). Eyes round feebly prominent. Antennæ short or moderate in length, eleven-jointed, first joint robust, second nearly as stout but shorter, third more slender and longer (except in *alternata*), 4—6 short gradually broader, 7—11 forming an abrupt oblong club usually as long as the preceding portion of the antennæ,

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the eighth joint very short and narrower than the seventh or ninth. Last joint of maxillary palpi longer than the third, cylindrical slightly acuminate at tip. Prosternum short in front of the coxæ, the cavities angulate externally and closed behind. Mesosternum moderately separating the middle coxæ and oblique (vertical in *obsoleta*), and variably carinate (not carinate in *ecarinata*). Metasternum moderate in length, the posterior coxæ contiguous. Abdomen with six segments. Legs moderate, rarely long, short and rather stout in *obsoleta*. Tibiæ spinulose externally. Tarsi of moderate length, joints 5—5—4 in both sexes. Body oval or oblong.

As above described Anisotoma is not strictly homogeneous there being two species a little at variance with the others and one of them especially so. *A. obsoleta* has the short robust form of Cyrtusa and a vertical mesosternum between the coxæ although not carinate in the latter genus, here however the divergence from the typical structure ends. On the other hand *A. ecarinata* has the normal oblique mesosternum but there is no trace of carina, further the mandibles are not toothed at the middle of the inner margin. There is however a variability in the degree of carination of the mesosternum among the other species, sometimes the carina is merely a raised line. I have thought it better to admit these exceptional forms in the genus, rather than separate them under names which would probably have but an ephemeral existence.

In number our species are much less than half those of Europe, which fact suggests the possibility that a more careful search would at least double our present number.

The accompanying table will aid in distinguishing those at present known to us. In it I have endeavored to avoid as far as possible the use of sexual characters and have without their aid separated six species, but the other seven have entirely refused to be separated by any other means, and the resemblance is so great in several cases that direct comparison without reference to the male might prove deceptive.

While all parts of our country have furnished specimens, the species appear to have a wide distribution, at least this is shown where a number of specimens have been examined. In several instances one or two specimens only have been accessible and from such a number no deductions can be made. We can however be certain that at least four cross the continent and several others have passed half that extent.

In the table the arrangement seems to show a gradual transition of the species from a resemblance to Hydnobius to a more certain relationship to Cyrtusa.

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Mesosternum carinate..... 1.
Mesosternum not carinate.....13.
1.—Mesosternum oblique between the coxæ..... 2.
Mesosternum vertical between the coxæ.....12.
2.—Third joint of antennæ not longer than the second.....**alternata** Mels.
Third joint distinctly longer..... 3.
3.—Punctures of elytra in distinct striæ..... 4.
Punctures of elytra confused, no strial arrangement.....10.
4.—Punctures of the intervals fine..... 5.
Punctures of all the intervals and striæ equal..... 9.
5.—Punctures of striæ moderate or coarse..... 6.
Punctures of striæ fine, intervals obliquely strigose.....11.
6.—Posterior femora of male with the outer condyle dilated in an obtuse unciform process, posterior tibia rather short, not arcuate.
humeralis n. sp.
Posterior femora of male broader at middle and angulate or toothed, the posterior tibia slender and arcuate.....**valida** n. sp.
Posterior femora of male not dilated, obsoletely serrulate or crenulate, posterior tibia slender and arcuate.....**assimilis** Lec.
Posterior femora of male not dilated, simple, neither dentate nor serrulate..... 7.
7.—Posterior tibiæ of male scarcely longer or more arcuate than in the female.....**punctatostriata** Kby.
Posterior tibiæ of male long, slender and arcuate..... 8.
8.—Elytral striæ regular. Posterior tibiæ of male arcuate near the tip.
Form oblong, punctures of the alternate intervals closely approximated.....**difficilis** n. sp.
Form oval, punctures of alternate intervals distant.....**collaris** Lec.
Elytral striæ irregular, the second and third arcuate, posterior tibiæ of male arcuate from the knee to tip.....**curvata** Mann.
9.—Outer condyle of posterior femur of male forming an acute hook.
conferta Lec.
10.—Oval, slightly oblong, posterior tibiæ of male slightly arcuate.
paludicola Crotch.
11.—Punctures of the intervals nearly equalling the striæ but more distant, the strigæ more evident near the base.....**strigata** Lec.
12.—Posterior femur of male gradually broader, the outer condyle triangularly prolonged. Elytra without subhumeral stria.....**obsoleta** Mels.
13.—Mandibles not toothed. Form oblong.....**ecarinata** n. sp.

A. alternata Mels.—Oval, robust, moderately convex, rufo-testaceous or pale castaneous, moderately shining, legs elongate. Head sparsely punctate. Antennæ rather short, the club a little longer than the rest of the antenna, third joint not longer or even a little shorter than the second. Thorax more than twice as wide as long, a little narrowed in front, apex feebly emarginate, base arcuate, hind angles distinct but obtuse, surface sparsely punctate. Elytra a little wider than the thorax, oval, sides moderately arcuate, surface 8-striate, striæ crenately punctured, intervals slightly convex obsoletely punctulate, the alternate with coarse, distant punctures. Metasternum alutaceous and sparsely punctate, abdomen sparsely punctate. Length .14—.16 inch; 3.5—4 mm. (Pl. VII, fig. 1).

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Male.—Anterior tarsi slightly dilated. Posterior legs moderately elongate, the femora not very stout, subangulate or toothed at middle, the tibia slender, arcuate at apical third and somewhat thickened at tip.

Two specimens are before me both males which show some differences, which may with more specimens prove to have specific value.

The first in the cabinet of Dr. Leconte and the type has the eighth stria of punctures entire and without a short subhumeral row of punctures. The posterior femur is merely subangulate at middle. In the second in my cabinet the eighth stria is abbreviated at base and there is a short subhumeral stria. The posterior femora are acutely toothed at middle and the hind tibiæ a little less thickened at tip. The two agree in having the third joint of the antenna short and nearly as thick as the second, while in all the other species the third joint is usually slender and distinctly longer than the second, often much so.

Two specimens, Georgia.

A. humeralis n. sp.—Oblong-oval, moderately convex, piceous, shining, basal margin near the humeri testaceous. Head sparsely punctate, vertex with several much coarser punctures in a transverse series. Antennæ nearly as long as head and thorax, club darker. Thorax twice as wide as long, narrowed in front, sides feebly arcuate, apex slightly emarginate, base arcuate, hind angles rectangular but not prominent, surface sparsely punctate, less distinctly at the sides. Elytra oblong oval, very little wider than the elytra, humeri distinct, surface with eight rows of moderately deep and rather closely placed punctures, the eighth row abbreviated at base and with a subhumeral series of punctures, intervals irregularly bisinuately punctured, the alternate intervals with coarse distant punctures. Metasternum alutaceous with very few punctures, abdomen sparsely obsoletely punctate and alutaceous. Legs piceo-testaceous. Length .16 inch; 4 mm.

Male.—Anterior tarsi moderately, middle tarsi less dilated. Middle and posterior femora stout, the latter with the outer condyle obtusely triangularly prolonged. Tibiæ stout the posterior slightly arcuate. (Pl. VII, fig. 4).

Female.—Tarsi slender. Middle and posterior femora not as broad as the male and without prolonged condyle on the posterior. Tibiæ straight less stout.

I have seen but two specimens, the male in my cabinet, the female with Mr. Ulke. The latter specimen is purely piceous in color with the basal pale space as plainly visible as in my lighter colored specimen. This character seems a good one for readily distinguishing this from any other in our fauna. By the male sexual characters it is related to *conferta* and *obsoleta* but with this the resemblance ceases.

Two specimens, northern California and Oregon.

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A. valida n. sp.—Oblong-oval, moderately robust, piceous varying to paler, moderately shining. Head sparsely punctate, vertex with an arcuate row of coarser punctures. Thorax twice as wide as long, a little narrower in front, widest in front of base, apex emarginate, sides and base arcuate, hind angles distinct but obtuse, surface sparsely punctate with a row of coarser punctures along the base. Elytra oblong-oval, a little wider than the thorax, sides moderately arcuate, surface moderately deeply 8-striate, the outer stria abbreviated but rarely with subhumeral stria, striæ rather coarsely crenately punctured, the intervals slightly convex, very finely punctulate, the alternate intervals with coarse punctures distantly placed. Metasternum very finely alutaceous, obsoletely punctate at the sides, abdomen sparsely punctate. Length .14—.24 inch; 3.5—6 mm. (Pl. VII, fig. 2).

Male.—Anterior and middle tarsi very slightly dilated. Posterior femur moderately stout, broadest at middle where it is subangulate or slightly dentate, the lower edge on the outer side slightly crenulate between the middle and the base, the inner condyle slightly prolonged. Posterior tibiæ rather slender, gradually stouter to apex, and strongly arcuate in its entire length. (Pl. VII, fig. 2 a).

Female.—Anterior and middle tarsi long and slender. Posterior femur not stout, the tibia straight and a little shorter than the male.

This species has a resemblance to some of our forms of Phaleria, and in the present genus is somewhat troublesome to distinguish from *assimilis* and the male characters must be relied on. By comparison the two are readily separable.

The distribution of this species is transcontinental on our northern line, extending from the White Mountains (Austin) to Canada, Colorado and Vancouver.

A. assimilis Lec.—Oblong-oval, piceous or rufo-piceous, shining. Head sparsely punctate with an arcuate row of coarser punctures. Thorax twice as wide as long, narrowed in front, apex emarginate, sides arcuate, base truncate, hind angles distinct but obtuse, surface sparsely punctate with coarser punctures at the sides of base. Elytra very little wider than the thorax, oval, a little longer than wide, sides moderately arcuate, surface with eight rows of moderately coarse, closely placed punctures, a distinct subhumeral short row of punctures, intervals slightly convex, obsoletely punctulate, the alternate intervals with coarser distant punctures. Metasternum alutaceous, obsoletely punctate. Abdomen alutaceous, sparsely punctulate. Length .14—.16 inch; 3.5—4 mm.

Male.—Anterior tarsi slightly dilated. Posterior femur not dilated at middle, the lower anterior edge crenulate, the tibia slender, strongly arcuate and flattened on the inner edge. (Pl. VII, fig. 3).

Female.—Tarsi slender. Posterior femur similar to the male but not crenulate, the tibia shorter than the male, stouter and more spinulose.

Closely resembling *valida* this species may be separated by the male characters. It will be observed that the short subhumeral stria is here always present and rather distant from the margin, while in *valida* it is only exceptionally present and not distant from the margin.

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Also transcontinental in its distribution, occurring in New Hampshire, Michigan, Canada, Colorado and Vancouver.

A. punctatostriata Kby.—Oval, slightly oblong, convex, shining. Head sparsely punctate with an arcuate row of coarser punctures. Thorax twice as wide as long, gradually narrower from base to apex, the latter emarginate, the base truncate, hind angles rectangular but not prominent, surface sparsely finely punctate, a few coarser punctures along the base at the sides. Elytra oval continuing regularly the curve of the sides of the thorax, surface with eight rows of coarse and closely placed but not crenate punctures, the eighth abbreviated at base with a moderately long subhumeral row of punctures, intervals flat, shining, sparsely punctulate, the alternate with distant coarser punctures. Metasternum finely alutaceous, sparsely punctulate, abdomen shining, very sparsely punctulate. Length .10 inch; 2.5 mm.

Male.—Anterior tarsi slightly dilated. Posterior femora simple beneath, neither dentate nor crenate, posterior tibiæ straight not differing from the female.

Female.—Anterior tarsi slender.

This species is peculiar in the almost entire obliteration of sexual differences, the anterior tarsi ♂ are even feebly dilated but quite distinctly broader than the female. Apart from the sexual characters of the male this species is not readily distinguishable from *assimilis* by description. It is however more regularly oval in its outline, the sides of thorax and elytra being in a continuous curve, the body more convex and the surface less deeply sculptured and more shining.

This species follows *assimilis* in its distribution. Synonymous with it is *læta* Mann., described from Alaska, that described as the present species is certainly an erroneous determination and is probably *Hydnobius substriatus* Lec.

A. difficilis n. sp.—Oblong, rufo-testaceous, shining. Head sparsely punctulate with a few slightly coarser vertical punctures. Thorax twice as wide as long, narrowed in front, sides feebly arcuate, apex slightly emarginate, base subtruncate, hind angles obtuse but not rounded, surface sparsely punctulate, with a few slightly coarser punctures near the basal angles. Elytra oblong-oval, sides feebly arcuate, surface substriate, striæ with moderate punctures closely placed, eighth stria much abbreviated, continued by coarser more distant punctures to base, a rather long subhumeral stria, intervals feebly convex very finely punctulate, the alternate intervals with coarser punctures rather closely placed. Body beneath finely alutaceous, obsoletely punctulate, the abdomen more distinctly. Length .12—.14 inch; 3—3.5 mm.

Male.—Anterior and middle tarsi very decidedly dilated. Posterior femora slightly thickened not serrulate nor dentate, the posterior tibiæ arcuate near the apex.

Female.—Anterior and middle tarsi more slender and longer than the male. Posterior femora less stout, the tibiæ shorter, less slender and very slightly arcuate.

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In its general aspect this species resembles *assimilis* but the elytra are more decidedly striate and the form less robust. The punctures of the alternate intervals are also more approximated so that the distance between them is scarcely more than the width of the interval, while the distance is double that in the other species. In its sexual characters it approaches *collaris* but it is a more oblong species than either that or *curvata*.

Two specimens, Owen's Valley, California.

A. collaris Lec.—Regularly oval, slightly oblong, not very convex, piceous to rufous, shining. Head sparsely punctate, vertex with an arcuate row of coarser punctures. Antennal club always darker. Thorax twice as wide as long, narrowed in front, wider at middle than at base, apex emarginate, sides and base arcuate, hind angles obtuse, surface sparsely punctate, a few coarser punctures at sides of base. Elytra oval not much wider than the thorax, sides moderately arcuate, surface with eight striæ of closely placed punctures, the eighth somewhat interrupted at base and with a rather long subhumeral stria which joins the margin, intervals slightly convex very sparsely punctulate, the alternate intervals with coarse distant punctures. Metasternum and abdomen very finely alutaceous and sparsely obsoletely punctulate. Length .08—.12 inch; 2—3 mm.

Male.—Anterior and middle tarsi slightly dilated. Posterior femora rather slender, simple, the tibiæ long and slender, straight at base, arcuate at apical third rather abruptly and somewhat thickened.

Female.—Tarsi slender, posterior tibiæ shorter than in the male and straight.

This species may be compared to a diminuative *valida* which it resembles in its form and nearly in sculpture. The sexual characters of the one are a reproduction of the other except as to the form of the femur. As in all the species forming the bulk of the genus the sexual characters of the male afford the only true means of separation.

Occurs in New Hampshire, Canada, Colorado, California and British Columbia, and is a little variable in its elytral sculpture in the various localities, in some the punctures of the striæ are subcrenate.

A. curvata Mann.—Regularly oval, very little oblong, piceous or rufopiceous, shining. Head nearly smooth, with four coarser vertical punctures. Thorax twice as wide as long, broadest at base, apex slightly narrower, sides and base feebly arcuate, hind angles rectangular but not prominent, surface very obsoletely sparsely punctulate, nearly smooth, a few obsolete larger punctures at sides of base. Elytra regularly oval, not wider than the thorax, surface with eight striæ of not very closely placed punctures, the second and third sinuate, a short subhumeral stria, intervals flat, obsoletely sparsely punctulate, the alternate with coarser distant punctures. Body beneath very finely alutaceous, sparsely obsoletely punctulate. Length .12—.14 inch; 3—3.5 mm.

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Male.—Anterior and middle tarsi slightly dilated. Posterior femora slender and simple, the posterior tibiæ long, slender, and regularly arcuate from base to apex and not thickened at tip.

Female.—Tarsi slender, tibiæ straight.

This species closely resembles *collaris* but the thorax is here broadest at base. It is the only species in which I have observed the irregularity of the striæ above mentioned and this seems to have suggested the name. The specimen described by Mannerheim was evidently a female. With it I have united *morula* Lec.

Two specimens, California and Washington Territory.

A. conferta Lec.—Oblong-oval, piceous, elytra paler, moderately shining. Head rather coarsely but sparsely punctate. Thorax a little more than twice as wide as long, narrowed in front, apex emarginate, base truncate, sides feebly arcuate, hind angles distinct but very obtuse, surface sparsely punctate, punctures a little coarser at the sides. Elytra a little wider than the thorax, base at humeri slightly oblique, sides moderately arcuate, sutural stria moderately deep posteriorly, surface with rows of rather coarse punctures, those of the striæ and intervals equal, color castaneous, suture and margin darker. Metasternum and abdomen obsoletely punctate and alutaceous. Length .10 inch; 2.5 mm.

Male.—Anterior tarsus of male dilated, middle tarsus even broader, posterior femur with outer condyle unciform, the tibia slightly arcuate and a little broadened at tip. (Pl. VII, fig. 4 a).

From its general appearance this species could only be mistaken for *paludicola*, but the regularity of the elytral punctuation and the sexual characters of the male at once distinguish it.

One ♂, Illinois, cabinet of Dr. Leconte.

A. paludicola Crotch.—Oblong-oval, piceous to castaneous, moderately shining. Head sparsely punctate. Thorax a little more than twice as wide as long, narrowed in front, apex emarginate, sides and base arcuate, hind angles distinct but obtuse, surface sparsely punctate. Elytra as wide at base as the thorax, slightly wider at the middle, sides moderately arcuate, base slightly oblique on each side, humeri rounded, surface rather coarsely and irregularly punctate with traces of a striate arrangement at the sides, sutural stria moderately deeply impressed, feeble at base. Metasternum punctate and alutaceous, abdomen alutaceous. Length .10 inch; 2.5 mm.

Male—Anterior and middle tarsi feebly dilated, posterior tibiæ slightly arcuate.

Female.—Tarsi simple, tibiæ straight.

This species resembles certain of our small Hydnobius more than it does the typical Anisotoma. Among the species of the latter it most closely approaches *conferta* but here the punctures are in distinct striæ.

Collected at El Cajon near San Diego, California, by Mr. Crotch. It also occurs further north in California.

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A. strigata Lec.—Oval, very little oblong, pale castaneous, shining. Head sparsely punctate. Thorax more than twice as wide as long, much narrowed in front, apex emarginate, sides feebly arcuate, base truncate, hind angles obtusely rectangular, surface shining very sparsely finely punctate. Elytra as wide at base as the thorax, not wider posteriorly, sides moderately arcuate, humeri not oblique, sutural stria moderately deeply impressed behind the middle, surface with moderately coarse punctures in regular rows, those of the striæ proper and intervals nearly equal and with oblique grooves uniting the punctures, more evident on the disc near the base. Metasternum and abdomen finely alutaceous. Length .08 inch; 2 mm.

Male.—Anterior tarsi slightly, middle tarsi feebly dilated, posterior tibiæ straight.

Female.—Tarsi slender.

This is the only species known to us with oblique strigæ on the elytra, in fact it is rather a coarse oblique grooving than a true strigosity such as is seen in *Colenis impunctata*. This character will readily distinguish it from any other known at present.

Occurs in the Lake Superior region and in Colorado.

A. obsoleta Mels.—Broadly oval, rufo-testaceous or pale castaneous, moderately shining, convex. Head sparsely punctate. Thorax more than twice as wide as long, narrowed in front, apex emarginate, sides and base arcuate, hind angles rounded, surface sparsely and finely punctate. Elytra as wide at base as the thorax a little wider posteriorly, form broadly oval, nearly as wide as long, base at sides not oblique, surface substriate, striæ with coarse, deep and closely placed punctures forming eight entire rows without the short subhumeral row, intervals flat or slightly convex, sparsely finely punctulate, the alternate intervals with coarser punctures most evident on the third. Metasternum shining, sparsely punctate. Each abdominal segment with a row of coarse deeply impressed punctures along the basal margin. Length .06—.10 inch; 1.5—2.5 mm.

Male.—Anterior and middle tarsi feebly dilated, middle tibia slightly arcuate, outer condyle of posterior femur prolonged in a triangular tooth, the femur itself gradually broader from the base to apex, posterior tibia straight but stout. (Pl. VII, fig. 4 b).

Female.—Tarsi slender, middle tibia straight, posterior femur somewhat broader externally but without dilated condyle.

This species is one of a small group in which the eight rows of punctures are entire and attain the base of the elytra without diminution, and there is no trace of a short subhumeral row of punctures which is the beginning of a ninth stria and exists in the vast majority of the species.

The mimicry between this insect and *Cyrtusa blandissima* is complete, and is even carried to the sculpture of the body beneath as well as the male sexual characters. The antennal groove in the Cyrtusa and the mesosternal carina in the present will always dis-

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tinguish them. In the sculpture of the upper surface they are almost precisely identical.

Occurs from the Atlantic to Colorado and in the south to Texas.

A. ecarinata n. sp.—Oblong, moderately elongate, rufo-testaceous, shining. Head sparsely finely punctate. Antennal club piceous. Mandibles not dentate at middle. Thorax more than twice as wide as long, slightly narrowed in front, apex feebly emarginate, base slightly arcuate, sides moderately arcuate, hind angles rounded, surface sparsely punctate. Elytra a little wider than the thorax, oblong-oval, sides feebly arcuate, surface with eight entire rows of punctures, the external slightly less distinct at base but without subhumeral stria, intervals punctulate, the alternate with very distant slightly coarser punctures. Metasternum coarsely punctured at the sides, abdomen less coarsely and indistinctly punctured. Length .08—.10 inch; 2—2.5 mm.

In the two specimens before me the anterior tarsi are wanting, the male has the middle tibiæ slightly arcuate, the posterior femora stouter than in the female and the hind tibiæ are straight. In the female the middle tibia is straight.

The legs are rather stout and the tibiæ not by any means slender, resembling those of *obsoleta*. The middle tibiæ have three quite strong spines on the outer edge.

The absence of mesosternal carina in this species is certainly a very remarkable character and is otherwise unknown to me in the genus. The general appearance of the antennal club is much like that of Cyrtusa except that the small eighth joint is here distinctly visible. The absence of mandibular tooth is also a departure from the *Anisotoma* type. From these departures from the typical structure of the genus the present species might be separated generically, but it seems to me that it is merely an aberrant form of the present genus, indicating decided affinities in the direction of Cyrtusa rather opposite to those shown by *obsoleta*. Were it not that the antennal grooves are wanting I would have considered it an aberrant Cyrtusa.

Two specimens, western Nevada, Morrison.

The following species has not been identified:

"*A. lateritia* Mann., Bull. Mosc. 1852, ii, p. 345.—Breviter ovata, convexa, rufo-ferruginea, oculis clavaque antennarum nigro-fuscis; thorace transverso, crebre punctato, angulis posticis subrectis; elytris profunde striato punctatis, interstitiis confuse seriato-punctatis. Longit. 1¾ lin.; latit. 1 lin.

"In volatu in insula Sitkha a D. *Holmberg* semel capta."

It appears to be a species resembling *conferta* Lec.

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COLENIS Erichs.

Head short, broad, slightly prolonged in front of the eyes, clypeus entirely corneous, truncate. Labrum emarginate, with a basal membranous portion. Mandibles feebly prominent, simple. Last joint of maxillary palpi cylindrical, slightly acuminate. Eyes round moderately prominent. Antennæ arising from under a slight frontal margin, eleven-jointed, first joint stout, oval, second as long but more slender, third equal to the second but more slender, 4—6 short, small, seventh a little larger, eighth small, 9—11 forming a loose oblong mass; head beneath without antennal grooves. Prosternum very short in front of the coxæ, the cavities angulate externally and closed behind. Mesosternum moderately separating the coxæ, carinate. Metasternum rather short, the side pieces narrowly visible, posterior coxæ contiguous. Abdomen with six segments. Legs rather short, tibiæ spinulose externally. Tarsi 5—4—4 in both sexes. Form broadly oval, not contractile.

This genus is more closely allied to Anisotoma than to any other. Erichson and the European authorities following him have described the antennæ as having a three-jointed club, and while the same idea is followed in the above diagnosis it seems to me that the club should be called five-jointed, as it certainly does not differ greatly from that seen in many Liodes.

One species occurs in our fauna.

C. impunctata Lec.—Broadly oval, convex, pale brown or testaceous, shining. Head very minutely strigose. Thorax more than twice as wide as long, much narrowed in front, apex feebly emarginate, base and sides arcuate, hind angles rectangular but not acutely so, surface smooth without sculpture. Elytra broadly oval, nearly as wide as long, sides continuing the curve of the sides of the thorax, sutural stria impressed behind the middle, surface finely transversely strigose. Body beneath nearly smooth. Length .06—.08 inch; 1.5—2 mm. (Pl. VI, fig. 23).

The male is known by the anterior tarsi being slightly dilated, the middle tarsi less so, the posterior femora a little stouter.

Occurs from the Middle States to Florida, Illinois and Tennessee.

CYRTUSA Erichs.

Head short, scarcely prolonged in front of the eyes, clypeus short, slightly emarginate at middle. Labrum deeply emarginate, subbilobed. Mandibles moderately prominent, dentate at middle of inner edge. Eyes round, feebly prominent. Antennæ arising from under a slight frontal ridge, rather short, eleven-jointed, the eighth however rarely visible, joints 7—11 forming a rather abrupt, oblong, flattened club, apparently of four joints from the smallness of the eighth, basal joint of antenna short, stout, second as long or even longer but more slender, third equal to second, 4—6 very short, together not longer than the third; head beneath with distinct grooves for the lodgment of the funiculus of the antennæ formed by the elevation of the side of the buccal cavity on the inner side, and a distinct ridge extending along the margin of the eye on the outer side. Maxillary palpi short, terminal joint cylindrical. Prosternum in front of coxæ very short, the coxal cavities transverse, closed behind. Mesosternum moderately separating the coxæ, vertical between them

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but not carinate. Metasternum moderate in length, the side pieces narrowly visible, posterior coxæ contiguous. Abdomen with six segments. Legs short, moderately stout, tibiæ spinulose externally but not strongly. Tarsi variable in form, joints 5—5—4 in both sexes. Body short, oval, convex, not contractile.

This genus seems very naturally the intermediate between those genera with the tarsi similar in the sexes and those in which they differ, with strong relationship with Anisotoma especially those species allied to *obsoleta*, it seems also equally close to Liodes and Amphicyllis.

Our species are distinguished in the following manner:

Elytra punctured over the entire surface, the striæ of punctures often entirely obliterated.....**picipennis** Lec.

Elytra with striæ of punctures, the intervals smooth and shining.

Tarsi slender.....**blandissima** Zimm.

Tarsi very short and much compressed.....**egena** Lec.

These all belong to the fauna of the Atlantic region.

C. picipennis Lec.—Oval, slightly oblong, castaneous to pale brown, shining. Head punctate. Thorax more than twice as wide as long, narrowed in front, apex emarginate, base arcuate, hind angles distinct but obtuse, sides moderately arcuate, surface sparsely finely punctate. Elytra broadly oval, continuing the curve of the thorax, surface irregularly punctate, sometimes with larger punctures forming faint rows near the sides and suture, sutural stria finely impressed behind the middle. Body beneath punctate, abdomen much more finely. Length .06—.08 inch; 1.5—2 mm.

Male.—Tarsi not dilated. Posterior femur gradually broader from the coxa to the knee, the outer condyle forming an acute dentiform process.

Female.—Posterior femur not dilated and without tooth.

In this species the tarsi are slender, the posterior slightly compressed, the tibiæ are normal, the posterior however less spinulose than the middle.

Occurs from Pennsylvania and New York westward through Michigan to Nevada and Vancouver.

C. blandissima Zimm.—Resembles the preceding in form and color. Head and thorax very sparsely and finely punctate. Elytra with eight entire striæ of moderate punctures, not very densely placed, the intervals flat, very rarely with some fine punctures. Body beneath very coarsely punctate, each abdominal segment with a row of coarse, deep, closely placed punctures along its basal margin. Length .06—.08 inch; 1.5—2 mm. (Pl. VII, fig. 8).

Male.—As in *picipennis*. The inner spur of the middle tibiæ is long and strongly arcuate at its base. (Pl. VII, fig. 8 a).

Female.—As in *picipennis*.

The structure of the legs and tarsi is as in *picipennis*.

Occurs in North Carolina and District of Columbia, where the specimens taken by Mr. Ulke are much larger and finer than the type described by Zimmermann.

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C. egena Lec.—Resembles *blandissima* in form and color but is usually smaller and more convex. Head and thorax finely punctulate, less distinctly on the thorax. Elytra with eight rows of very fine punctures moderately closely placed but somewhat irregular in their arrangement, intervals flat, smooth, rarely with a few fine punctures. Metasternum minutely punctulate, abdomen more coarsely but vaguely punctate. Length .04—.06 inch; 1—1.5 mm.

Male.—Tarsi not visibly dilated. Posterior femur broad at tip, the outer condyle prolonged in a hook-like process. Spurs of middle tibiæ short. (Pl. VII, fig. 8 b).

Female.—Femur stout without hook-like process.

This species is remarkable in the shortness of its legs, and especially the broader and shorter middle and hind tibiæ which resemble somewhat those of Saprinus. The tarsi are also unusually short and compressed recalling those of *Cremastochilus Schaumii*. It is evidently our representative of the European *latipes*. With this I unite *impubis* Zimm.,* which seems merely a smaller specimen.

Occurs from Michigan to Georgia.

ISOPLASTUS n. g.

Head short, broad, not prolonged in front of the eyes, clypeus narrowly emarginate at middle. Labrum short, emarginate. Mandibles moderately prominent not dentate within. Eyes round not prominent. Antennæ arising under a distinct frontal ridge, received in distinct grooves on the under side of the head, ten-jointed, first joint short, cylindrical, second equally stout and longer, third more slender, shorter than the second, 4—7 short, together very little longer than the second, 8—10 forming an abrupt, oval, compressed and rather compact club, the first joint of which is longer, the last smaller and rounded at tip. Maxillary palpi short, last joint cylindrical. Thorax in front emarginate. Prosternum in front of coxæ very short, the cavities angulate externally and closed behind. Mesosternum narrowly separating the coxæ, vertical between them and not carinate. Metasternum short, hind coxæ contiguous. Abdomen with six segments. Legs short, fossorial, femora stout, broader at tip, tibiæ broad, the middle strongly and irregularly spinous, the posterior broad and flat, less spinous. Tarsi short, compressed, 5—5—4 in the male, 5—4—4 female. Body almost hemispherical, slightly contractile.

Among the genera with antennal groove and tarsi dissimilar in the sexes this genus is peculiar in its ten-jointed antennæ with triarticulate club. Superficially it resembles *Cyrtusa blandissima* to such a degree that I find it associated with that species in almost every cabinet.

I. fossor n. sp.—Rather broadly oval, very convex, rufo-testaceous, shining. Head sparsely finely punctulate. Thorax twice as wide as long, narrowed in front, apex emarginate, base arcuate, sides moderately arcuate, hind angles obtuse, surface sparsely and minutely punctulate. Elytra continuing the curve of the thorax, humeri slightly oblique, obtusely rounded, surface with eight rows of fine punctures moderately closely placed, those of the disc some-

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what irregular, intervals flat, smooth. Metasternum coarsely punctured at the sides, abdomen obsoletely punctate. Length .06—.08 inch; 1.5—2 mm. (Pl. VII, fig. 10).

Male.—Anterior and middle tarsi slightly stouter, posterior femur with the outer condyle prolonged into an obtusely unciform process. Tarsi 5—5—4.

Female.—Tarsi not broader. Posterior femur broad without unciform process. Tarsi 5—4—4.

Four specimens, Detroit, (Hubbard); District of Columbia, (Ulke).

LIODES Latr.

Head feebly convex, not narrowed behind, received in the emarginate thorax nearly as far as the eyes, beneath with well defined antennal grooves, oblique from the eyes inward. Clypeus slightly prolonged beyond the front and corneous, separated from the front by a well marked impressed suture and a depression on each side. Eyes round, moderately prominent. Labrum short usually truncate in front. Mandibles robust, not prominent, simple. Maxillary palpi slender at base, the terminal joint stout, conical. Antennæ arising under a slight frontal margin, nearly attaining the hind angles of the thorax; eleven-jointed, first joint stout, second nearly as stout but shorter, third slender and longer, 4—6 small, gradually broader, the next five forming an elongate loose club, the second joint of which is smaller. Anterior coxæ closed behind, the prosternum in front very narrow. Mesosternum moderately separating the middle coxæ and usually nearly vertical between them, not carinate. Posterior coxæ contiguous. Abdomen with six segments, the terminal usually small. Legs not long, the tibiæ spinulose externally. Tarsi slender, the first joint of the posterior moderately long, the number of joints variable in the sexes, being 5—5—4 in the male and 5—4—4 female.

I am indebted to Dr. Leconte for the use of a short tabular study of the species of the present genus, prepared by Mr. Frederick Blanchard of Lowell, Massachusetts, in which I find the species well and accurately separated, but the increase in the mass of material before me required the preparation of an entirely new table which is presented below. The characters there used seem sufficiently definite and not to need further explanation.

Elytra with regular striæ of punctures.....1.
Elytra with more or less confused striæ, becoming in some species nearly double striæ.....2.
Elytra without strial arrangement, punctures confused.....3.

1.—Ninth stria of punctures marginal in the greater part of its length, distant from the margin at base only.
Elytra strongly sinuate at the sides, the ninth stria very distant from margin at base, punctures of striæ rather fine.
Intervals of striæ distinctly punctulate.....**globosa** Lec.
Intervals of striæ smooth or very nearly so.....**polita** Lec.
Elytra not sinuate at the sides, the ninth stria not very distant at base, punctures of striæ rather coarse, intervals smooth.....**discolor** Mels.
Ninth stria distant from the margin in its entire length, elytra not sinuate.
Blanchardi n. sp.

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2.—Ninth stria distant from the margin in its entire length.
Punctures of striæ rather strong, of intervals fine, scarcely perceptible.
basalis Lec.
Punctures of striæ fine, those of the intervals quite evident.
obsoleta n. sp.
Ninth stria marginal, distant from the margin for a short distance at base only, punctures of discal striæ much confused forming nearly double striæ..... **geminata** n. sp.
3.—Punctures of elytra much confused without distinct strial arrangement, the punctures rather coarse but unequal..... **confusa** n. sp.

The last is the only species thus far known peculiar to the Pacific region. A variety of *globosa* occurs with it but but with these exceptions the species are peculiar to the Atlantic region, our total being slightly in excess of the European list, the genus being thus far confined to our own and that continent.

L. globosa Lec.—Broadly oval, very little longer than wide, convex, piceous-black, shining. Head and thorax punctulate, the latter much more sparsely and finely. Hind angles of thorax rectangular, sometimes slightly obtuse. Elytra oval, not longer than wide at base, the latter on each side scarcely oblique, the humeri distinct, sides when viewed laterally sinuate behind the middle, disc with eight entire striæ of moderate punctures, the ninth short, distant from the margin at base but becoming confused and joining the margin in front of the middle, intervals sparsely punctulate, the alternate with scarcely evident coarser punctures, distantly placed. Metasternum coarsely punctate, abdomen more finely and sparsely. Length .12—.14 inch; 3—3.5 mm.

Male.—Anterior and middle tarsi very slightly dilated. Posterior femora with a minute denticle at middle.

Female.—Tarsi slender. Posterior femora simple.

Var. **globosa.**—Color entirely piceous-black, sometimes with the legs and under side paler.

Var. **bicolor.**—Piceous-black, head, thorax and scutellum orange-red, body beneath and legs rufo-piceous. Occurs in Nevada.

In this species the striæ are not as regular as is usual in this group although not at all approaching the irregularity of the others. I do not see any good reason for separating the second variety as a species, the color being the only difference. I have seen both sexes of the two forms.

Occurs in the northern part of the Atlantic region extending to Nevada, and as far south as Kentucky.

L. polita Lec.—Hemispherical, a little longer than wide, piceous-black, shining. Head very minutely and sparsely punctulate. Thorax smooth, hind angles rectangular. Elytra not longer than wide at base, humeri distinct, surface with eight entire striæ of moderate punctures, not closely placed, the ninth distant from the margin at base but joining it at middle, intervals smooth, the alternate with distant punctures, sides of elytra when viewed

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laterally rather deeply sinuate. Body beneath coarsely but sparsely punctate. Length .12—.14 inch; 3—3.5 mm.

Male.—The tarsi are scarcely at all dilated. The posterior femur has on the lower edge at middle, a slight tubercle similar to that observed in the anterior femora of some *Cholevæ*.

Female.—Tarsi slender. Femur simple.

This species can only be mistaken for *globosa*, but the less punctate surface will readily distinguish it.

In its distribution this species is more southern than *globosa*, all the specimens seen being from Virginia, Kentucky and Georgia.

L. discolor Mels.—Hemispherical, very little longer than wide, piceous-black above, rufo-piceous beneath, shining. Head and thorax impunctate, the latter with rectangular hind angles. Elytra as wide as long, sides when viewed laterally very feebly sinuate, surface with eight entire striæ of moderately coarse and rather closely placed punctures, the ninth stria distant from the margin at base, confluent with it slightly behind the middle, intervals flat, smooth, the alternate with distant coarse punctures. Body beneath obsoletely sparsely punctate. Length .10—.12 inch; 2.5—3 mm.

Male.—Anterior tarsi moderately dilated, the first joint quite broad, middle tarsi less dilated, posterior femora simple.

Female.—Tarsi very slender.

Occurs from Massachusetts and Canada to Virginia.

L. Blanchardi n. sp.—Hemispherical, piceous-black, very shining. Head very minutely punctulate. Thorax with hind angles rectangular, surface impunctate. Elytra scarcely at all sinuate when viewed laterally, surface with nine entire striæ of moderate punctures, not very closely placed, the ninth stria being entire and equidistant from the margin in its entire length, intervals smooth, shining, the alternate with distant punctures. Body beneath sparsely punctate. Length .08—.10 inch; 2—2.5 mm.

Male.—Anterior tarsi very feebly dilated. Posterior femora with a minute denticle at middle of lower margin.

Female.—Tarsi slender. Femora simple.

In this species the surface is quite as polished as in *Phalacrus*. It could only be mistaken for *discolor*, but the position of the ninth stria would at once distinguish it.

Occurs at Tewksbury, Massachusetts, collected by Mr. F. W. Blanchard who recognized its value as a species.

L. obsoleta n. sp. (Blanchard mss.)—Oval, very convex, somewhat narrower posteriorly, piceous-black, very shining. Head sparsely finely punctulate. Thorax very minutely and distantly punctulate, hind angles rectangular. Elytra with the margin when viewed laterally slightly sinuate, the surface with nine entire striæ of rather fine confused punctures, having a tendency to form double rows, the ninth although confused distant from the margin even at its tip, intervals minutely sparsely punctulate, the alternate with slightly larger punctures distantly placed. Body beneath sparsely punctate. Length .08—.12 inch; 2—3 mm.

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Male.—Anterior tarsi slightly dilated. Posterior femora with a small denticle at middle of lower edge.

Female.—Tarsi slender. Femur simple.

Closely resembles *Blanchardi* and differs only in the confused striæ and punctulate intervals.

Occurs from New Hampshire and Canada to Virginia.

L. basalis Lec.—Broadly oval, convex, shining, piceous-black, elytra either entirely orange-red or with a humeral space of variable size of that color. Head and thorax minutely sparsely punctulate. Elytra distinctly sinuate on the sides when viewed laterally, surface with eight entire striæ of rather coarse much confused punctures, the ninth stria distant from the margin at base becoming much confused and joining the margin at middle, intervals scarcely visibly punctulate, the alternate with distant coarser punctures. Body beneath sparsely punctate. Length .10 inch; 2.5 mm.

Male.—Anterior and middle tarsi dilated moderately. The posterior femur flat beneath without tubercle or tooth.

Female.—Tarsi slender.

As already noted this species varies in the color of the elytra, usually there is a narrow basal red space extending from the humeri to near the suture while in others the elytra may become entirely red. These latter are the *dichroa* Lec. It is possible that black varieties of this species may occur which will then closely resemble *discolor* except in the irregularity of the elytral striæ. Excepting in color it also resembles *obsoleta*, but the punctures of the striæ are here coarser and the finer punctures of the intervals barely visible.

Occurs from the Middle States north and as far west as Illinois.

L. geminata n. sp. (Blanchard mss.)—Broadly oval, very convex, slightly narrower behind, piceous-black, shining. Head sparsely minutely punctulate. Thorax smooth, hind angles rectangular. Elytra distinctly sinuate on the sides when viewed laterally, surface with eight rows of very much confused punctures becoming almost double series, the ninth very short, and uniting with the margin very close to the humeri, intervals very minutely punctulate. Body beneath distinctly alutaceous, sparsely punctate. Length .12—.14 inch; 3—3.5 mm. (Pl. VII, fig. 7).

Male.—Anterior and middle tarsi distinctly dilated. Posterior femur channeled beneath but without tooth or tubercle.

I have seen but two males of this species which approach in size *globosa* and *polita* but have a form more nearly resembling Tritoma (*Cyrtotriplax* Cr.). The characters in the table are sufficient to distinguish it from any at present known.

Occurs from Massachusetts to Virginia and Illinois.

L. confusa n. sp.—Broadly oval, not very convex, piceous-black, humeri reddish, shining. Head very sparsely punctulate. Thorax scarcely perceptibly punctulate. Elytra with the sutural stria moderately deeply impressed, the

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entire surface rather coarsely punctate without traces of strial arrangement, sides of elytra slightly sinuate. Legs rufo-piceous. Body beneath distinctly alutaceous and sparsely punctate. Length .14 inch; 3.5 mm.

Male.—Anterior and middle tarsi dilated. Posterior femora slightly flattened beneath not dentate.

A very distinct species by the absence of any attempt at a strial arrangement of the punctures.

One specimen, western Nevada.

AGATHIDIUM Illig.

Head flat, quadrangular, received in the emarginate thorax as far as the eyes, and with well defined oblique antennal grooves beneath. Clypeus either slightly prolonged, continuous with the front or emarginate and partly membranous. Labrum short, rounded in front. Mandibles simple, the left sometimes prolonged or horned in the male. Maxillary palpi short, clavate, the basal joint very slender, the terminal conical. Eyes oval, not prominent. Antennæ arising under a frontal margin, eleven-jointed, first joint stout, moderate in length, second nearly as stout but shorter, third more slender and longer (except *dentigerum*) than the second, joints 4—8 small, gradually broader, 9—11 forming an oblong, rather loose club. Anterior coxal cavities angulate externally, closed behind. Mesosternum variably separating the coxæ and subcarinate or simple. Metasternum rather short the side pieces narrowly visible, posterior coxæ contiguous. Abdomen with six segments. Legs rather slender but not long, tibiæ not spinulose externally, the spurs small. Tarsi slender and varying between the sexes in the number of joints, being always 5—5—4 in the males and 5—4—4 or 4—4—4 in the females.

The clypeus presents several important modifications. In three species (*sexstriatum*, *bistriatum* and *estriatum*), that member is entirely corneous and distinctly prolonged beyond the sides of the front. In *concinnum* and *rotundulum* the margin of front and clypeus is continuous without perceptible membranous border, and with membranous border in *exiguum*, *dentigerum*, *californicum* and *revolvens*. In *oniscoides*, *politum*, *pulchrum* and *difforme*, the clypeus is broadly emarginate and the emargination supplied with a membranous space. The last three it will be observed have the left mandible larger in the male.

These modifications of the structure of the clypeus from that form in which the middle is prominent to that in which the middle is partly membranous, unite in one genus all the important modifications which are observed in the entire family, and indicate that they should not be considered of any value in a generic point of view.

Under *politum* will be found some remarks on the latter character.

The mesosternum has two important modifications which need no further mention than that made in the synoptic table.

A little variation occurs in the antennæ in the length of the third joint as well as in the size of the seventh which is sometimes a little

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larger than the eighth, and the antenna then approaches the structure seen in Liodes.

All the species are more or less contractile, some of them very feebly so. In the first four species of the table the contractile power is perfect, so that the specimens roll themselves into a very convex lenticular mass with the legs retracted and completely concealed. The greater the contractility the more arcuate the base of the thorax and the humeri of the elytra more oblique. In all our species the base of the thorax is foliaceous and overlaps the base of the elytra, but Lacordaire says that the base of the one is sometimes applied against the base of the other.

Sexual characters other than those found in the tarsi do not occur except in *dentigerum*. In the males the tarsi are always 5—5—4, and in the females 5—4—4 or 4—4—4. The last only occurs in the group with prominent clypeus.

Fourteen species are now known to us distributed in every part of our territory, although the species do not have the extended range observed in those of Anisotoma. A comparison of the number now known with those described in the European lists suggests the probability of having but few additions to our lists in the future.

Typical specimens of all the species excepting *oniscoides* and *mandibulatum* have been examined, the first being unnecessary while the synonymy of the second seems quite evident.

The following table will, I think, enable the known species to be determined with ease, with the assistance of the descriptions, the latter having in many cases been abbreviated by comparisons where repetition seemed unnecessary.

A.—Mesosternum continuous on the same plane with the metasternum, moderately separating the middle coxæ and subcarinate in front.
Body perfectly contractile, metasternum with an oblique ridge on each side, limiting a shallow concavity for the reception of the front and middle legs in repose.
Elytra polished, impunctate.
Third joint of antennæ longer than the second. Posterior femora of male simple.
Larger species, sutural stria very fine.....**oniscoides** Beauv.
Smaller species, sutural stria moderately impressed...**exiguum** Mels.
Third joint of antennæ not longer than the second. Posterior femora of male toothed near the tip.
Small species, sutural stria wanting.....**dentigerum** n. sp.
Elytra punctulate, otherwise as in *exiguum*.....**californicum** n. sp.
Body very imperfectly contractile, metasternum without raised oblique line.
Elytra substriate and punctate.....**revolvens** Lec.

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B.—Mesosternum vertical between the coxæ which it narrowly separates, not carinate in front.

Hind angles of thorax distinct almost rectangular, humeri very little oblique, body feebly contractile. Clypeus slightly more prominent than the sides of the front.

Elytra with moderately coarse punctures and six, more or less regular, striæ on the disc. Thorax sparsely punctulate...**sexstriatum** n. sp.

Elytra with coarse punctures and but two feeble striæ. Thorax smooth, impunctate.....**bistriatum** n. sp.

Elytra very irregularly punctate with coarse and fine punctures intermixed. Thorax sparsely punctulate.....**estriatum** n. sp.

Hind angles of thorax broadly rounded, body contractile.

Clypeus prominent at middle. Elytra punctulate...**repentinum** n. sp.

Clypeus truncate at middle, entirely corneous.

Elytra coarsely punctate.....**concinnum** Mann.

Surface absolutely smooth. Elytra without sutural stria.

rotundulum Mann.

Clypeus emarginate and partly membranous. Left mandible of male prolonged.

Body feebly convex, finely and equally punctulate.

angulare Mann.

Body very convex and contractile.

Surface very smooth, rarely with feeble trace of punctuation.

politum Lec.

Elytra distinctly punctulate, elytra with yellow oblique spots, sometimes however entirely piceous.....**pulchrum** Lec.

Surface more evidently punctate, thorax punctulate.

difforme Lec.

A. oniscoides Beauv.—Body perfectly contractile, black or piceous, entirely impunctate, smooth and shining. Thorax nearly twice as wide as long, base and posterior portion of the sides continuously arcuate, apex deeply emarginate the anterior angles broadly rounded. Elytra when viewed from above almost truly circular in outline, the margin when viewed from the side continuously arcuate without angulation, sutural stria very finely impressed. Metasternum finely alutaceous, sparsely obsoletely punctulate, and with an oblique elevated line on each side, the two meeting at middle, abdomen more rugulose, sparsely pubescent. Mesosternum continuous with the metasternum and obtusely carinate in front. Length extended .14—.16 inch; 3.5—4 mm. (Pl. VII, figs. 11, 12, 13).

Male.—Anterior tarsi slightly dilated. Tarsi 5—5—4.

Female.—Anterior tarsi slender. Tarsi 5—4—4.

This species is so perfectly contractile that the legs are completely hidden when in that state. The elevated line on the metasternum is the posterior limit of a slight concavity which accommodates the anterior and middle legs in contraction.

A. globatile Lec. is merely a smaller form.

Occurs over the territory east of the Mississippi from Canada to Georgia.

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A. exiguum Mels.—Resembles a diminutive form of the preceding species and is known only by its small size, sutural stria more deeply impressed, lateral margin of elytra slightly angulate, body less perfectly contractile. Length extended .08—.10 inch; 2—2.5 mm.

Varieties occur in this species in which some have the elytra absolutely smooth, others punctulate, they are not however distinct.

Sexual characters as in *oniscoides*.

Occurs with the preceding, and in Colorado.

A. dentigerum n. sp.—Smaller than *exiguum* and perfectly contractile as in *oniscoides*. Antennæ with third joint evidently shorter than the second. Surface smooth, shining and impunctate, sutural stria entirely wanting. Body beneath as in *oniscoides*. Length .06—.07 inch; 1.5—1.75 mm.

Male.—Anterior tarsi slightly dilated. Posterior femur rather slender with a triangular tooth near the outer condyle. Tarsi 5—5—4.

Female.—Tarsi slender, femora simple. Tarsi 5—4—4.

Two specimens, Stone Creek, Lee Co., Virginia, (Schwarz).

A. californicum n. sp.—Closely resembling *exiguum*, similarly contractile. Head and thorax microscopically alutaceous, elytra sparsely but very distinctly punctulate, sutural stria moderately deeply impressed and extending from the apex beyond the middle. Length .08—.10 inch; 2—2.5 mm.

Sexual characters as in *exiguum*.

When viewed laterally the margin of the elytra is more distinctly angulate than in *exiguum* but not more so than in *dentigerum*.

Occurs in California, Nevada and Washington Territory.

A. revolvens Lec.—Broadly oval, piceous, shining, semi-contractile. Head sparsely finely punctulate. Thorax less than twice as wide as long, narrowed in front, apex deeply emarginate, base broadly arcuate, sides not continuously arcuate with the base, hind angles distinct but rounded, surface sparsely very finely punctulate. Elytra oval longer than wide, base at sides oblique, humeri rounded, sutural stria rather deeply impressed from middle to apex, surface substriate, sparsely punctulate, the punctures coarser and denser than on the thorax. Mesosternum oblique, finely carinate in front. Metasternum without oblique line, surface alutaceous sparsely punctate. Abdomen sparsely punctate. Length extended .14 inch; 3.5 mm.

Sexual characters as in *oniscoides*.

This species from the structure of the base of the thorax is far less contractile than the preceding species. In some specimens, particularly the males, there is a tendency in the seventh joint of the antennæ to become larger than the eighth, showing an approach toward Liodes which is also indicated by the less contractile power.

Occurs from Canada to Vancouver.

A. sexstriatum n. sp.—Oblong-oval, moderately convex, scarcely at all contractile, piceous, thorax orange-red, shining. Head sparsely finely punctulate. Thorax more than twice as wide as long, much narrowed in front, sides arcuate, apex deeply emarginate, base feebly arcuate, hind angles subrect-

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angular, not prominent, surface obsoletely sparsely punctulate. Elytra oval slightly longer than wide, not wider than the thorax, sides gradually arcuately narrowing to apex, surface with six moderately well-defined striæ of coarse punctures, the intervals and sides of elytra with finer punctures not densely placed. Body beneath sparsely punctulate, shining. Length .08 inch; 2 mm.

Male.—Anterior and middle tarsi moderately dilated. Tarsi 5—5—4.

Female.—Tarsi slender 4—4—4.

Occurs in western Nevada, (Morrison). An easily known species.

A. bistriatum n. sp.—Broadly oval, convex, semi-contractile, piceous, moderately shining. Head sparsely punctulate, clypeus rufous. Thorax more than twice as wide as long, narrowed in front, base broadly arcuate, sides moderately arcuate, hind angles rectangular but not prominent, surface impunctate. Elytra broadly oval, nearly as wide as long, base at sides slightly oblique, humeri very distinct, sutural stria moderately impressed, surface moderately coarsely but not densely punctate with two feeble striæ of punctures on the disc. Body beneath sparsely punctulate. Length .10—.12 inch; 2.5—3 mm.

Male.—Anterior and middle tarsi moderately dilated. Tarsi 5—5—4.

Female.—Tarsi slender 4—4—4.

This species resembles some of the forms of *concinnum* but the latter is more contractile, hind angles rounded, elytra without striæ and the female tarsi differently formed.

Occurs in western Nevada, (Morrison).

A. estriatum n. sp.—Broadly oval, convex, semi-contractile, piceous, shining, thorax orange-red. Thorax more than twice as wide as long, narrowed in front, apex feebly emarginate, base and sides arcuate, hind angles obtusely rectangular, surface very sparsely and minutely punctulate. Elytra oval, a little longer than wide, base at sides slightly oblique, humeri distinct, sutural stria moderately impressed posteriorly, surface moderately densely but irregularly punctured with coarse and finer punctures intermixed. Body beneath sparsely finely punctulate. Length .10 inch; 2.5 mm.

Male.—Anterior and middle tarsi slightly dilated. Tarsi 5—5—4.

Female.—Unknown.

This species has some resemblance to *concinnum* and *angulare*, but is intermediate in punctuation and differs from both in the hind angles of the thorax.

One specimen, Garland, Colorado, (Schwarz).

A. repentinum n. sp.—Oval, convex, contractile, piceous, shining. Head sparsely punctulate, clypeus slightly prolonged at middle, truncate at tip and corneous. Thorax more than twice as wide as long, hind angles broadly rounded, surface sparsely punctulate. Elytra oval, very little longer than wide, humeri oblique forming a distinct angle with the sides, sutural stria extremely fine but attaining the middle, surface very distinctly punctate. Body beneath sparsely punctate. Length .08 inch; 2 mm.

I have seen but one ♀ of this species. It might readily be con-

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founded with *difforme* but differs by the form of the clypeus and the more finely impressed sutural stria. For the discovery of this species I am indebted to Mr. F. Blanchard of Lowell, Massachusetts.

Occurs in the White Mountains, New Hampshire.

A. concinnum Mann.—Broadly oval, very convex, contractile, color variable from testaceous to piceous. Head sparsely finely punctulate. Thorax more than twice as wide as long, narrowed in front, apex moderately emarginate, sides moderately, base strongly arcuate, hind angles broadly rounded, surface sparsely obsoletely punctulate. Elytra very broadly oval, scarcely longer than wide, base on each side slightly oblique, humeri rounded, surface coarsely not densely punctured, sutural stria long, moderately deeply impressed. Body beneath sparsely punctulate, abdomen a little more coarsely. Length .08—.12 inch; 2—3 mm.

Male.—Anterior and middle tarsi slightly dilated. Tarsi 5—5—4.

Female.—Tarsi slender 5—4—4.

With this species I unite *effluens* Mann., after a comparison of types from that author. The punctuation varies somewhat but not beyond the ordinary limits.

Occurs from California and Nevada northward to Alaska.

A. rotundulum Mann.—Oval, very convex, contractile, piceous, margins often paler. Surface absolutely smooth, elytra without sutural stria. Thorax as in *concinnum*. Base of elytra very oblique and forming a very distinct angle with the sides. Body beneath sparsely punctulate. Length fully extended .08 inch; 2 mm.

Sexual characters unknown, the two specimens from Mannerheim now before me are in such condition that I cannot safely determine the number of tarsal joints.

Two specimens, Alaska.

A. angulare Mann.—Broadly oval, not very convex, semi-contractile, piceous, moderately shining. Head minutely punctulate. Thorax much more than twice as wide as long, narrower in front, apex feebly emarginate, sides and base arcuate, hind angles rounded, surface moderately densely but very minutely punctulate. Elytra oval, a little longer than wide, base on each side slightly oblique, humeri distinct, sutural stria long, moderately impressed, surface finely but not densely punctulate. Body beneath very sparsely finely punctulate. Length .14 inch; 3.5 mm.

Male.—Anterior and middle tarsi slightly dilated. Tarsi 5—5—4.

Female.—Tarsi slender 5—4—4.

As in all the species which follow the margin of the front is apparently emarginate, the front edge of the clypeus being membranous. The mandibles of male are normal.

Two specimens, Alaska and Colorado.

A. politum Lec.—Oval, very convex, contractile, color variable from rufo-ferruginous to piceous, shining. Head smooth. Thorax more than twice as wide as long, narrowed in front, apex moderately deeply emarginate, sides

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and base arcuate, hind angles broadly rounded, surface smooth. Elytra oval, nearly as wide as long, base on each side oblique, humeral angles distinct but obtuse, sutural stria moderately long, finely impressed, surface smooth, in the pale specimens sparsely punctulate when examined under a high power. Body beneath sparsely punctulate. Length .08—.10 inch; 2—2.5 mm. (Pl. VII, fig. 14).

Male.—Anterior and middle tarsi slightly dilated. Tarsi 5—5—4. Left mandible either much prolonged or with a horn-like process from the upper side.

Female.—Tarsi slender 5—4—4. Mandibles similar not prolonged.

After an examination of a large number of specimens I find that the elytra are absolutely smooth in some and microscopically punctulate in others, the specimens which are totally black being the smoother. The males also vary in the structure of the left mandible, there being every gradation between the prolonged mandible and that in which the prolongation becomes a distinct horn arising from its upper edge. This variation can readily be shown in *pulchrum* which seems to be abundant, and in this I have a male not differing appreciably in its mandibles from the female. As this mandibular character is a normal structure which closely approaches the borders of monstrosity, its variation cannot be assumed to have specific value.

A. parvulum Lec., seems to be merely a small form of the same.

Occurs from Pennsylvania to Missouri, and from Canada to Kentucky.

A. pulchrum Lec.—Resembles *politum* in form, elytra always distinctly sparsely punctulate. Head piceous, often with a paler vertical spot. Thorax reddish-yellow with large round, discal, piceous space. Elytra piceous, each with two large, oblique, yellowish spots of variable size and shape. Length .10—.12 inch; 2.5—3 mm.

Sexual characters as in *politum*.

The color varies greatly so that the head and thorax may be entirely piceous and the elytral spots comparatively small, or the spots may extend and become confluent. *A. mandibulatum* Mann., is without much doubt the same species.

Occurs in California and also in the White Mountains, New Hampshire, (Austin), but I have not seen any from intermediate points except Kentucky, (Dury).

A. difforme Lec.—Similar in form to *politum* but a little more elongate, piceous, moderately shining, margin of thorax and a vague oblique stripe on each elytron. Head very obviously punctulate. Thorax sparsely and finely punctulate. Elytra with sutural stria moderately deeply impressed and extending two-thirds to base, surface sparsely but very evidently punctate. Body beneath sparsely punctulate. Length .08 inch; 2 mm.

Male.—First two joints only of anterior tarsus slightly dilated. Tarsi 5—5—4.

Female.—Tarsi slender 5—4—4.

This species is so much more obviously punctate that there need

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be no difficulty in separating it from the preceding two species. In nearly all the specimens I have seen the sides of the thorax are rufo-piceous, and a vague paler space on each elytron extending from the humeri to the suture at apex.

Occurs in the White Mountains, (Austin), and the Lake Superior region.

Here seems a fit place to reproduce Say's description of an unknown species. It is certainly not an Agathidium, and may be either an Anisotoma or Hydnobius. I have placed it doubtfully under *H. Matthewsii*.

"*Agathidium pallidum*.—Body yellowish-testaceous; elytra with very minute transverse linea.

"Inhabits Missouri.

"Body oval, convex, yellowish-testaceous, glabrous; head with a few hairs beneath the edge; eyes prominent, hemispherical, black; palpi subulate; antennæ hirsute, clavate; club oblong, perfoliate; second joint of club minute; thorax impunctured; scutel minute; elytra rugose in transverse very minute lines; thighs with very minute spines above; tibia with prominent rigid spines.

"Length more than three-twentieths of an inch.

"A simple specimen occurred under wood, at Engineer Cantonment."

Although the Anisotomini with similarly sculptured elytra are few I am entirely unable to make this fit any known to me, the nearest approach being as above stated.

AGLYPTUS Lec.

Head broad and flat, with distinct antennal grooves beneath, clypeus not prolonged, finely margined in front, the suture not visible. Labrum short, broad, emarginate. Mandibles not prominent, simple. Eyes oval, rather coarsely granulated beneath. Antennæ arising under a slight frontal margin, eleven-jointed, first joint stout, second nearly as stout but longer, third more slender than the second and shorter, 4—5—6 short but longer than wide and together a little longer than the third, seventh broader, eighth smaller than the seventh, last three joints forming an oblong club, the terminal broader and longer than the preceding. Maxillary palpi slender, first joint short, second and third nearly equal and not stouter than the first, terminal joint slender, acute at tip, nearly equal in length to the preceding two. Prosternum very short in front of the coxæ, the cavities angulate externally and closed behind. Mesosternum moderately separating the coxæ, vertical between them and rather strongly carinate. Metasternum moderate in length, the coxæ contiguous. Abdomen with six segments, the terminal scarcely visible. Legs rather short, the femora stout, tibiæ slender, not spinulose externally and with very minute tibial spurs. Body oval, convex, partially contractile. Tarsi

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slender the anterior dilated in the male, these four-jointed, the middle and posterior three-jointed. Tarsi of female three jointed on all, the first and last joints moderately long and equal, the second short.

With the antennal grooves beneath the head and the dissimilarity of the tarsi in the sexes, there can be no doubt that this genus should be placed near Agathidium and not Colenis. The antennal club is however somewhat like that of the latter genus, so that there may be some doubt as to whether it should be called three- or five-jointed, it is in much the same condition that we find in several species of Agathidium in which the seventh joint is a little larger than the eighth.

The number of the tarsal joints in the male is a repetition in the present series of genera of the same character in Agaricophagus, in which however the tarsi are similar in the two sexes. That they are three-jointed on all the tarsi in the female has been verified by an examination under the compound microscope, a matter rather difficult to do in so small an insect.

A. laevis Lec.—Oval, very convex, very little longer than wide, piceous, shining, surface without sculpture. Thorax with margin and base translucent, hind angles rectangular. Body beneath rufous, smooth. Length extended .04—.06 inch; 1—1.5 mm. (Pl. VII, fig. 15).

Male.—Anterior tarsi moderately dilated, four-jointed, middle and posterior tarsi three-jointed.

Female.—Tarsi slender, three-jointed on all the feet.

The form of this insect is that of a diminutive Agathidium resembling *rotundulum* or *politum*.

Occurs in Canada, Illinois, Georgia, Louisiana, but rare.

Tribe VI.—*Clambini.*

Anterior coxæ conical, moderately prominent, contiguous, with moderate trochantin, the cavities angulate externally and closed behind. Middle coxæ separated by the mesosternum in *Empelus* and by the fine carina in the other genera. Posterior coxæ contiguous with plates covering the thighs, partially in *Empelus* or completely in *Clambus* and *Calyptomerus*. Antennæ of eleven, ten or nine joints variably inserted, either contiguously to the eyes (in *Clambus*) or distant, but not under a frontal margin. Tarsi four-jointed, tibiæ without spurs.

The structure of the posterior coxæ affords the only means of separating this tribe from the rest of the family as a whole. By the structure of the anterior coxæ and their cavities the Anisotomini are the only close allies.

The posterior coxæ in two of the genera have quite broad plates arcuately narrowed within which cover completely the posterior legs in repose. In Empelus however the plate is very narrow on the outer

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part of the coxa and dilated only at the articulation somewhat after the manner of certain Elateridæ. In two of the genera the elytra are not margined and there is no separation of any epipleural portion. Empelus however reverts to the general type with distinct margin and epipleuræ.

In Clambus and Calyptomerus the middle coxæ are very narrowly separated by a thin lamina while in Empelus the separation is well marked. In the first two the mesosternum is almost hidden and the metasternum is concave in front, the depression limited behind by a well marked arcuate edge. In Empelus however there is no such structure, the mesosternum is quite distinct and the metasternum not concave. This excavation of the metasternum has already been foreshadowed in certain Agathidium (*oniscoides*, etc.), and has already been described and its meaning indicated.

One of the most curious characters in the tribe is found in the method of insertion of the antennæ. In Empelus the sides of the front, a little distance in advance of the eyes, are simply sinuate, the basal joint is here inserted and the antennæ in repose pass under the head to a distinct groove. In Clambus there is apparently a triangular notch, but on closer examination it will be observed that the sides of the head are acutely margined and that portion of the acute margin appears to pass under the head and become continuous with the ridge which defines the inner edge of the antennal groove. The antennæ arise close to the eyes in Clambus. In Calyptomerus however the structure is quite distinct. The antennæ arise at a distance in front of the eye midway between it and the middle of the front, the sides of the head are acute as in Clambus, an edge or margin passing forward from the front of the eye while the frontal margin passes backward and dips under the other, continuing in a ridge beneath the head as in Clambus. Between the two ridges thus formed the antennæ arise and the first joint is concealed and may readily escape detection.

The manner in which the antennæ are disposed of beneath the head requires special mention. Attention has already been directed to the ridge which is the inner limit of the antennal grooves or cavities beneath the head. In Empelus and Clambus this ridge is nearly straight and not very distant from the inner edge of the eye. In the former genus the stem of the antenna lies close against this ridge when in repose, the clavicular portion being then bent and resting in an arcuate groove which crosses the gula from one side

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to the other, the tips of the two clubs probably touching, (Pl. VII, fig. 19 c). A similar condition exists in Clambus except that there is a median gular ridge and on each side a shallow fossa in which the club rests, (Pl. VII, fig. 19 a). In Calyptomerus however the case is different. The head being much larger and broader and the antennæ arising so much in front of the eye, the ridge in passing beneath the head is arcuate inward leaving between it and the eye a wide space, the antenna is consequently received on the side of the head beneath and within the eye, and is curved in a somewhat spiral manner and does not reach the gula at all, (Pl. VII, fig. 19 b).

Finally the abdomen varies in the number of the segments as will be seen in the table.

The genera may be thus separated:

Elytra margined at the sides with distinct epipleuræ. Coxal plates narrow.
Antennæ 11-jointed, club 3-jointed. Moderately distant from the eyes at base.
Abdomen with seven segments.....**Empelus.**
Elytra not margined at the sides, without epipleuræ. Coxal plates wide.
Antennæ 10-jointed, club 2-jointed. Arising at a distance from the eyes.
Abdomen with six segments.....**Calyptomerus.**
Antennæ 9-jointed, club 2-jointed. Arising close to the eyes.
Abdomen with five segments visible.....**Clambus.**

Empelus and *Calyptomerus* have the elytra slightly prolonged and obliquely truncate, in *Clambus* rounded at tip not prolonged.

In addition to the above genera M. Mulsant has described *Loricaster* (Opusc. Ent. xii, 1861, p. 139), said to have wide coxal plates, three-jointed antennal club with non-contractile body. Through the kindness of M. Henri Jekel I have been enabled to examine a specimen, and find it in every respect a Clambus resembling our *C. puberulus*.

EMPELUS Lec.

Head moderate in size, not rapidly narrowing behind, front moderately long, oval, clypeus not distinct. Labrum small almost concealed. Mandibles as in *Clambus*. Maxillary palpi moderately long, first joint very small, second long and slender, third small and oval, fourth as long as second, oval, obtuse at tip, rather flat with the under side concave. Eyes longitudinally oval, moderately granulated. Antennæ arising at a distance from the eyes, in a slight sinuation of the sides of the front, the stem received in very distinct antennal grooves beneath the eyes, the club received beneath the gula in an arcuate depression which extends from one side to the other; eleven-jointed, first joint oval, flat, suddenly narrowed at base, second less stout, much shorter and oval, 3—6 slender and long, gradually shorter, 7—8 small, rounded, 9—11 forming an oblong club, the last joint longer, oval at tip. Thorax beneath as in *Clambus*. Scutellum small. Mesosternum moderately separating the coxæ and very finely carinate. Metasternum moderately long not excavated in front. Posterior coxæ contiguous, the plate much narrower than in Clambus and dilated over

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the femoral articulation only. Abdomen with seven distinct segments (at least in the male). Elytra distinctly margined at the sides, epipleurae distinct. Legs slender not long, tibiae not spinulose and without terminal spurs. Tarsi slender, four-jointed, first three joints subequal, very gradually decreasing in length, last joint very nearly as long as these together. Body winged, feebly contractile.

This genus seems fully to unite, through Aglyptus, the Anisotomini with the present tribe. By its feeble contractile power and entire metasternum it differs strikingly from Clambus and Calyptomerus, and the structure of its maxillary palpi, antennae, mesosternum and posterior coxae define it as one of the most distinct genera in the entire family.

One species occurs in our fauna.

E. brunnipennis Mann.—Oblong-oval, moderately convex, feebly contractile, sparsely clothed with extremely fine pubescence, piceous, head and thorax rufous. Head sparsely minutely punctulate. Thorax about twice as wide as long, narrowed in front, apex broadly emarginate, sides feebly arcuate, base broadly arcuate, hind angles distinct but obtuse, surface very minutely punctulate. Elytra oval, gradually narrowed posteriorly, base on each side slightly oblique, humeri obtuse, sides feebly arcuate, apex slightly obliquely truncate, surface very minutely sparsely punctulate. Body beneath and legs rufo-piceous, surface very sparsely punctulate. Length extended .08 inch; 2 mm. (Pl. VII, fig. 16).

The male has the anterior tarsi distinctly broader than the female.

This insect has much more general resemblance to a non-contractile Agathidium than to Clambus.

Occurs in Alaska.

CLAMBUS Fischer.

Head large, broad, rather flat, angulate at the sides and acutely margined, gradually narrowed behind, front oval, at sides before the eyes notched allowing the antennae to pass beneath the head to an oblique antennal groove which is limited within by a raised line. Clypeus not distinct. Eyes rather large but flattened above and angulate, beneath rather coarsely granulated. Antennae ciliate, nine-jointed, inserted free at the anterior margin of the eyes, first joint short, stout, oval, second slender and long, third and fourth slender, shorter than the second, 5—7 short, gradually a little broader, 8—9 forming an oval club, the terminal larger. Labrum short, scarcely visible beyond the clypeus. Mandibles short, bifid at tip. Maxillary palpi with first joint very small, second and third stouter, subequal, terminal slender and acute at tip, as long as the two preceding united. Anterior coxae conical, transverse, contiguous with distinct trochantin, the cavities angulate externally and closed behind, prosternum in front very narrow. Mesosternum very short, carinate between the coxae which are very transverse. Metasternum moderately long, suddenly concave in front, the concavity limited by an arcuate edge. Posterior coxae laminate covering the hind thighs completely in repose, the plates arcuately narrowed within. Abdomen with five visible segments only. Legs slender not long, the tibiae not spinulose and without terminal spurs. Tarsi slender

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and moderately long, four-jointed, first joint long; equal to the next two which are gradually shorter, the fourth nearly as long as the first. Body globose oval, very convex, perfectly contractile, winged, the under wings well developed, long and ciliate.

In addition to the above characters it will be noticed that the gula is obtusely carinate at middle, and with a shallow fovea on each side for the lodgment of the club of the antennæ, the elytra are not margined at the sides and the epipleuræ are not distinct.

The foregoing description is unusually long from the fact that all preceding authors fail to mention characters which seem of great importance, in view of the system of classification adopted in the preceding pages. The entire structure of Clambus indicates the propriety of retaining it in the present family, although it possesses certain characters at variance with the general structure, while some of the structures here are already foreshadowed in Agathidium and Aglyptus. These genera with Empelus in the present tribe connect Clambus with the general mass of the family.

Erichson held the opinion that these insects should be placed among the Coccinellidæ, while other authors have seen resemblances to the Trichopterygidæ. The first idea seems to have no substantial foundation while the latter has more in its favor,* yet the resemblances are too few and the points of divergence so many that it may be equally dismissed.

Our species are three in number, as follows:

Surface smooth, shining, glabrous, without punctuation or pubescence. **gibbulus** Lec.

Surface sparsely pubescent.
Elytra posteriorly moderately densely finely punctulate... **puberulus** Lec.
Elytra with obsolete, very sparse punctuation.
Humeral angles of elytra rounded..... **seminulum** n. sp.
Humeral angles distinct..... **vulneratus** Lec.

C. gibbulus Lec.—Globose-oval, piceous-black, shining, surface smooth without punctuation or pubescence. Thorax more than twice as wide as long, sides short strongly arcuate, apex sinuate each side, base strongly arcuate, hind angles rounded, lateral margin more or less diaphanous Elytra very little longer than wide, humeri rounded. Body beneath smooth with extremely sparse pubescence. Legs and antennæ testaceous. Length extended .04 inch; 1 mm. (Pl. VII, fig. 18).

I have not observed any special sexual differences except that certain specimens seem to have the anterior tarsi broader and are probably males.

Occurs from Canada to Texas.

* The under wings are ciliate with long hairs in a manner very similar to that family.

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C. puberulus Lec.—Globose-oval, piceous to piceo-testaceous, elytra paler toward the tip. Head and thorax very sparsely minutely punctulate and finely pubescent. Elytra more distinctly punctulate, very sparsely on the disc, gradually more dense to the tip, surface sparsely pubescent. Body beneath sparsely minutely punctulate and pubescent. Legs and antennæ testaceous. Length .04 inch; 1 mm.

Usually a little smaller than the preceding and differing in its punctuation and pubescence.

Occurs from Massachusetts to District of Columbia.

C. vulneratus Lec.—Globose-oval, piceous-black, each elytron with an indistinctly limited rufous space at middle. Head and thorax extremely finely and very sparsely punctulate and pubescent. Elytra with the humeral angles rectangular, surface smooth on the disc, very sparsely punctulate at the sides and near the apex and sparsely pubescent. Body beneath very minutely punctulate and sparsely pubescent. Legs and antennæ testaceous. Length .04 inch; 1 mm.

Easily known by the above characters. The elytral spot is probably not constant, and it is possible that other specimens will show that the elytra may become gradually paler to tip as in *puberulus*.

One specimen, Garland, Colorado.

C. seminulum n. sp.—Closely resembling *puberulus* in form and color and differs only in having the punctuation as in *vulneratus*. The humeral angles of the elytra are rounded as in *puberulus*. Length .04 inch; 1 mm.

Two specimens, Camp Grant, Arizona.

CALYPTOMERUS Redt.

Characters of *Clambus* with the following exceptions: Maxillary palpi with the first joint small, second much stouter, obconical, third much smaller, fourth more slender and nearly equal to the two preceding, obtuse at tip. Antennæ ten-jointed, first joint short and stout, second somewhat globose, as stout as the first, third slender, 4—6 slender, gradually decreasing in length, 7—8 small, nodose, 9—10 forming an oval mass the terminal a little smaller; antennæ arising at a distance in front of the eye in a notch in the side of the front, the antennæ in repose received in broad shallow cavities on the under side of the head between the eyes and the gula. Abdomen with six distinct segments. Elytra slightly prolonged, subtruncate at tip. Body winged. Metasternum very little excavated in front. The eyes are coarsely granulated above and beneath and the tarsi are longer than those of Clambus.

The differences between this genus and the preceding are many and important, and it seems rather remarkable that the insertion of the antennæ at a point so distant from the eyes should have escaped notice in print, as that accurate artist Mr. Jules Migneaux has not failed to represent it in his figure, (Duval, vol. i, pl. 18, fig. 189).

C. oblongulus Mann.—Oblong-oval, convex, contractile, piceo-testaceous, moderately shining, sparsely pubescent. Head large, rapidly narrowing behind the eyes, occiput vaguely transversely impressed, surface sparsely minutely punctulate. Thorax smaller than the head but a little wider, more than twice

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as wide as long, apex on each side slightly sinuate, sides very short broadly arcuate, base less arcuate, surface sparsely minutely punctulate. Elytra oblong-oval, arcuately narrowing to apex which is obliquely truncate, base slightly oblique on each side, humeri obtuse, surface sparsely minutely punctulate, the punctures denser near the tip, pubescence longer and more evident than on the head and thorax. Body beneath sparsely punctulate, finely pubescent. Length extended .08 inch; 2 mm. (Pl. VII, fig. 17).

The male has the anterior tarsi distinctly broader than in the female.

Occurs in Alaska and at Veta Pass, Colorado.

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Synonymical list of the genera of Silphidæ based on the notes in the preceding pages.

Tribe SILPHINI.

Necrophorus Fab.
Silpha Linn.
Necrodes Leach.
Ptomaphila Hope. (*a*)
Necrophilus Latr.
Pelates Horn.
Pteroloma Gyll. (*b*)
Apatetica Hope.
Agyrtes Fröhl.
Sphærites Duftsch.

Tribe LYROSOMINI.

Lyrosoma Mann.

Tribe PINODYTINI.

Pinodytes Horn.

Tribe CHOLEVINI.

Group BATHYSCIÆ.

Leptodirus Sturm. (*a*)
S. G. *Propus* Abeille.
Antrocharis Abeille.
S. G. *Diaprysius* Abeille.
Oryotus Miller.
Aphaobius Abeille.
Adelops ‡ Schauf.
Pholeuon Hampe.
S. G. *Drimeotus* Miller.
Bathyscia Schiœdte.
Adelops ‡ Auct. Europ.
Quœstus Schauf.
Quœsticulus Schauf.
Cytodromus Abeille. (*c*)
Spelæochlamys Dieck. (*c*)

Group PLATYCHOLEI.

Platycholeus Horn.

Group CHOLEVÆ.

Catoptrichus Murray.
Choleva Latr. (*a*)
Prionochæta Horn.
Ptomaphagus Illig.
S. G. *Catopomorphus* Aubé.
Adelops Tellk.

Group COLONES.

Colon Herbst.
Camiarus Sharp.

Tribe ANISOTOMINI.

Triarthron Mœrkel.
Stereus Woll.
Hydnobius Schmidt.
Dietta Sharp.
Anogdus Lec.
Anisotoma Illig.
Colenis Erichs.
Agaricophagus Schmidt.
Liodes Latr.
Scotocryptus Girard. (*d*)
Cyrtusa Erichs.
Amphicyllis Erichs.
Isoplastus Horn.
Agathidium Illig.
Aglyptus Lec.

Tribe CLAMBINI.

Empelus Lec.
Calyptomerus Redt.
Clambus Fisch.
Loricaster Muls.

(*a*) For synonymy already published see "Catalogus."
(*b*) See "Catalogus," excluding *Lyrosoma*.
(*c*) Of uncertain position and value.
(*d*) Possibly allied to *Aglyptus* but undoubtedly an Anisotomide.

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EXPLANATION OF PLATE V.

Fig. 1.—*Necrophorus carolinus* Linn.
Fig. 2.—Thorax beneath of *N. marginatus* Fab.
Fig. 3.—*Silpha surinamensis* Fab.
Fig. 4.—*S. bituberosa* Lec.; *a*, thorax beneath of same.
Fig. 5.—*Necrophilus hydrophiloides* Mann.
Fig. 6.—*Pelates latus* Mann.; *a*, thorax beneath of same.
Fig. 7.—*Pteroloma tenuicornis* Lec.
Fig. 8.—*Apatetica lebioides* Westw., (after Lacordaire.*)
Fig. 9.—*Agyrtes longulus* Lec.
Fig. 10.—*Sphærites glabratus* Fab.
Fig. 11.—*Lyrosoma opacum* Mann.
Fig. 12.—*Pinodytes cryptophageides* Mann.; *b*, antenna of same.
Fig. 13.—*Catoptrichus Frankenhæuseri* Mann.; *a*, anterior tibia ♂; *b*, antenna.
Fig. 14.—*Prionochæta opaca* Say; *a*, tibial spur.
Fig. 15.—*Ptomaphagus consobrinus* Lec.; *a*, antenna.
Fig. 16.—*Ptomaphagus* (Catopomorphus) *brachyderus* Lec.; *a*, antenna.
Fig. 17.—*Choleva luridipennis* Mann.; *a*, thorax beneath of same.

CORRECTIONS.

Page 235, line 4 from bottom, for terse read tense.

Page 307, line 21, for simple read single.

The genus *Camiarus* Sharp, is written as in the original description *Camirus* in the earlier pages. Dr. Sharp subsequently changed the latter name from its resemblance to *Camira*.

* Occurs in the Himalaya region of India.

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EXPLANATION OF PLATE VI.

Fig. 1.—*Adelops hirtus* Tellk.; *a*, head seen from the front showing the eyes.
Fig. 2.—*Platycholeus leptinoides* Crotch.
Fig. 3.—*Bathyscia Freyeri** Miller.
Fig. 4.—*Pholeuon leptoderum** Friw.; *a*, thorax beneath of same.
Fig. 5.—*Oryotus Schmidtii** Miller.
Fig. 6.—*Leptoderus Hohenwarti** Schmidt; *a*, *b*, thorax and body beneath of same.
Fig. 7.—*Colon thoracicum* Horn; *a*, antenna of same.
Fig. 8.—*C. magnicolle* Mann.
Fig. 9.—Antenna of *C. bidentatum* Sahlb.
Fig. 10.—Anterior and posterior legs of *C. bidentatum* ♂; *a*, anterior tibial spur enlarged; *b*, posterior tibial spur; *c*, anterior tibial spur of a male of *C. inerme*.
Fig. 11.—Anterior and posterior legs of *C. dentatum* ♂.
Fig. 12.—Same of *C. celatum* ♂.
Fig. 13.—Same of *C. Hubbardi* ♂.
Fig. 14.—Anterior tibia and posterior leg of *C. paradoxum* ♂.
Fig. 15.—*Triarthron Lecontei* Horn; *a*, antenna; *b*, posterior leg of ♂.
Fig. 16.—*Hydnobius Matthewsii* Crotch.
Fig. 17.—Posterior leg of *H. obtusus* Lec. ♂.
Fig. 18.—Anterior leg of *H. strigilatus* Horn, ♂.
Fig. 19.—Posterior leg of *H. substriatus* Lec. ♂, with variation.
Fig. 20.—Same of *H. longulus* Lec. ♂, with variation.
Fig. 21.—Same of *H. latidens* Lec. ♂.
Fig. 22.—*Anogdus capitatus* Lec.; *a*, antenna; *b*, posterior leg.
Fig. 23.—*Colenis impunctata* Lec.
Fig. 24.—*Camiarus thoracicus*† Sharp.
Fig. 25.—*C. convexus*† Sharp.

* These occur in various caves of Europe.
† These occur in New Zealand.

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EXPLANATION OF PLATE VII.

Fig. 1.—*Anisotoma alternata* Mels.
Fig. 2.—*A. valida* Horn; *a*, posterior leg of ♂.
Fig. 3.—Posterior leg of *A. assimilis* Lec. ♂.
Fig. 4.—Posterior leg of *A. humeralis* Horn, ♂; *a*, femur of *A. conferta* ♂; *b*, femur of *A. obsoleta* ♂.
Fig. 5.—*Agaricophagus cephalotes** Schmidt, (after Duval).
Fig. 6.—*Amphicyllis globus** Fab., (after Duval).
Fig. 7.—*Liodes geminata* Horn.
Fig. 8.—*Cyrtusa blandissima* Zimm.; *a*, posterior leg and middle tibia of ♂; *b*, posterior leg of *C. egena* Lec. ♂.
Fig. 9.—*Stereus cercyonoides*† Woll. (after Wollaston).
Fig. 10.—*Isoplastus fossor* Horn; *a*, antenna of same.
Fig. 11.—*Agathidium oniscoides* Beauv.
Fig. 12.—Under side of same.
Fig. 13.—*A. oniscoides* contracted, almost fully.
Fig. 14.—*A. politum* ♂, fully contracted.
Fig. 15.—*Aglyptus lævis* Lec.; *a*, antenna of same.
Fig. 16.—*Empelus brunnipennis* Mann.; *a*, antenna of same.
Fig. 17.—*Calyptomerus oblongulus* Mann.; *a*, antenna of same.
Fig. 18.—*Clambus gibbulus* Lec.; *a*, antenna of same.
Fig. 19.—Under side of head, showing the position of the antennæ in repose of *a*, *Clambus*, *b*, *Calyptomerus* and *c*, *Empelus*.

* Occurs in Europe.
† Occurs in the Madeira Islands.

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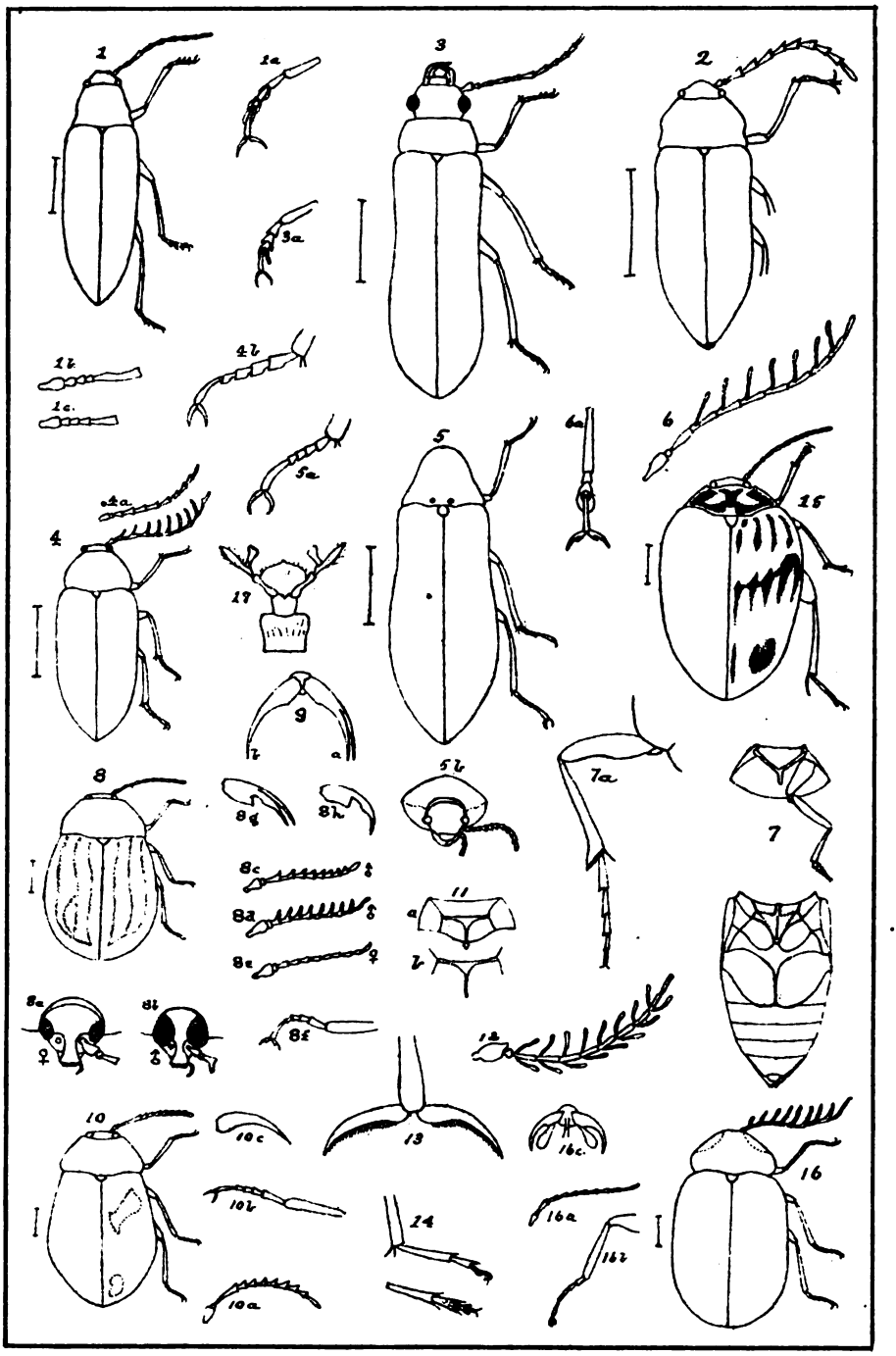

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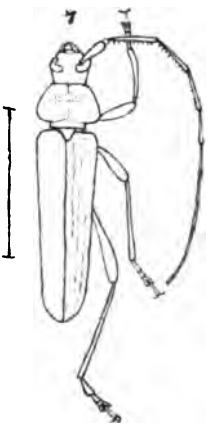

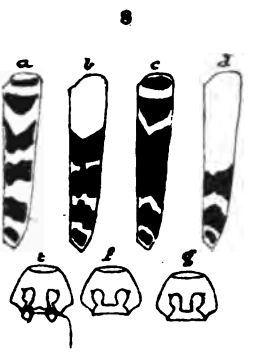

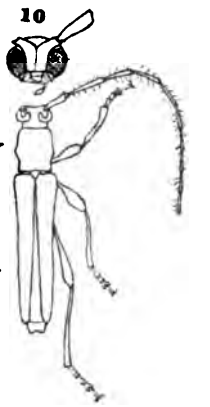

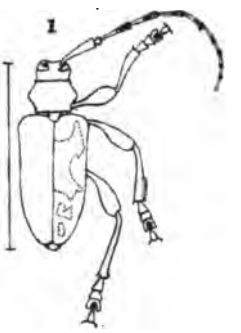

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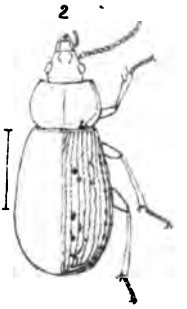

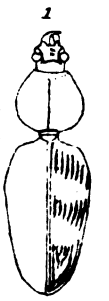

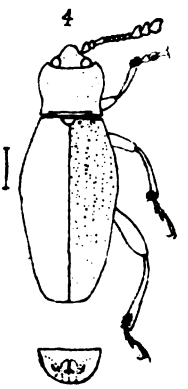

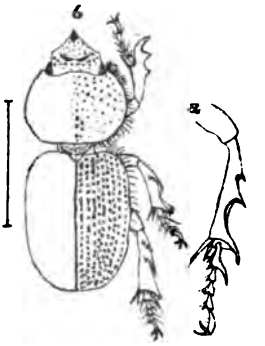

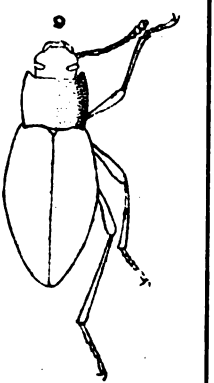

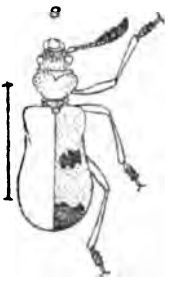

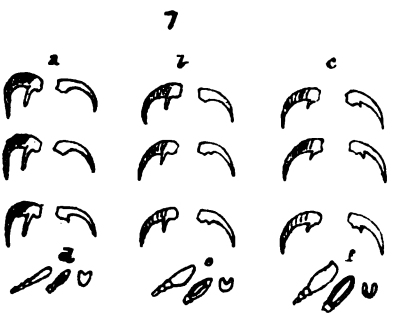

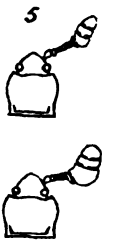

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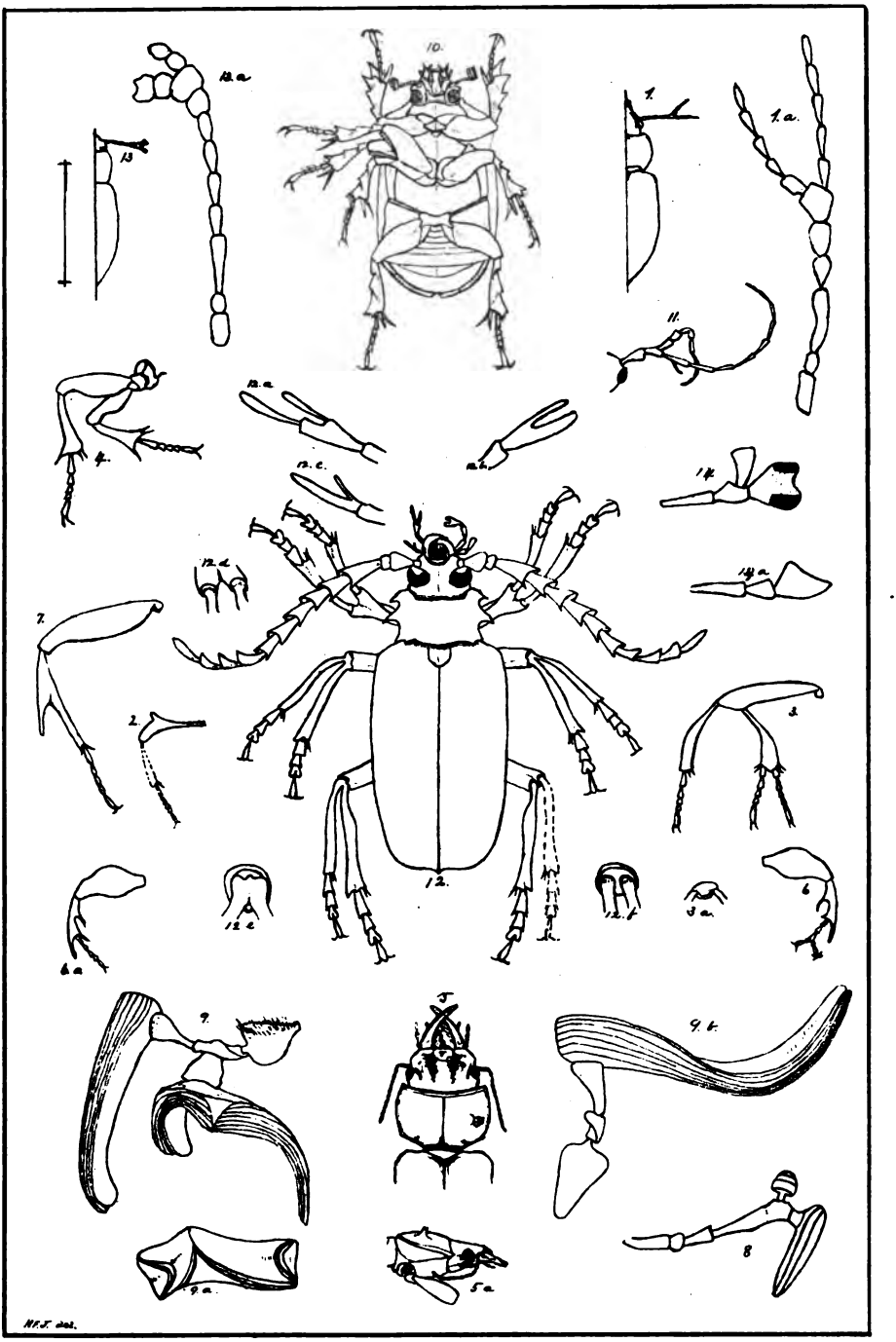

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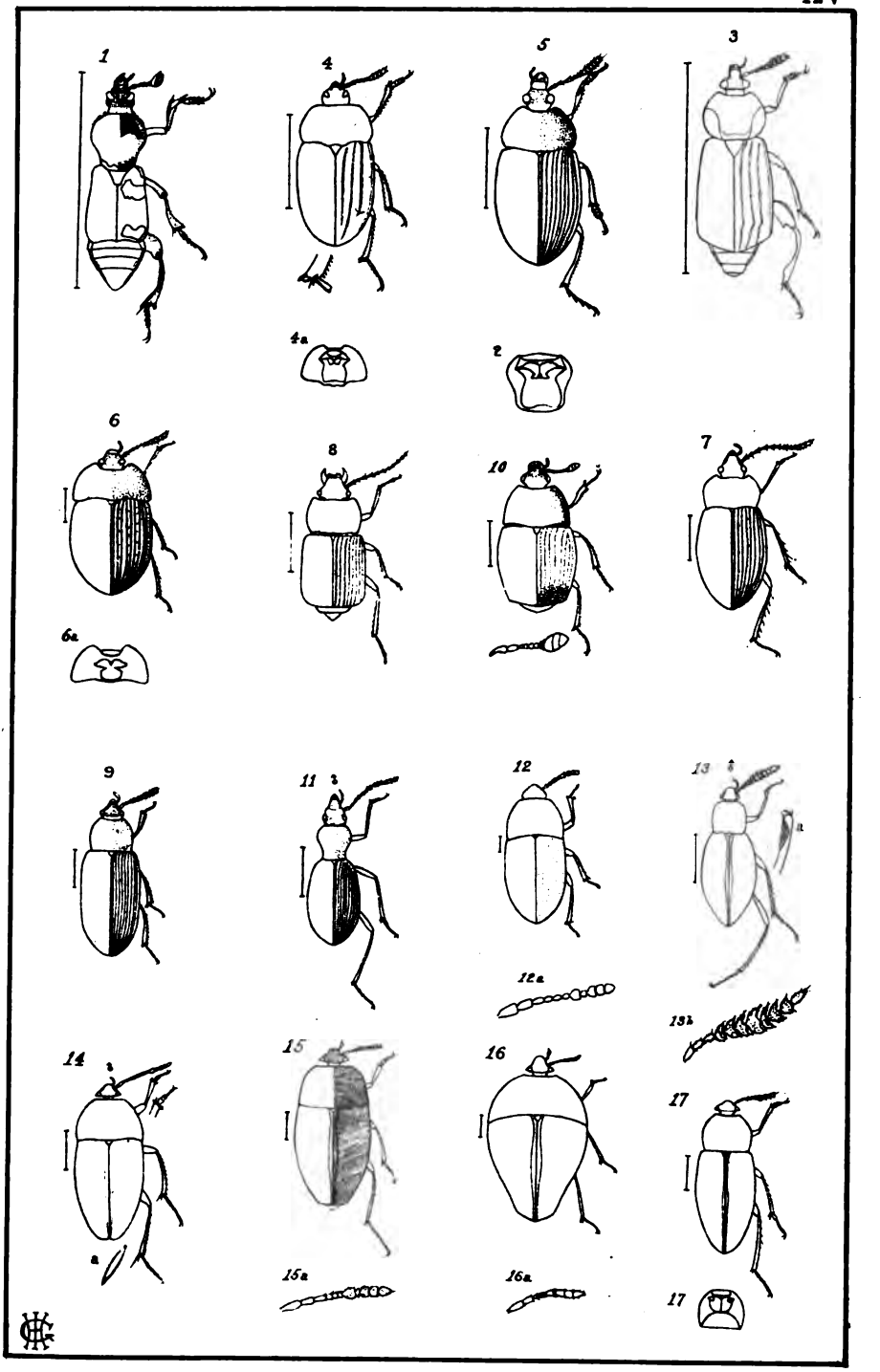

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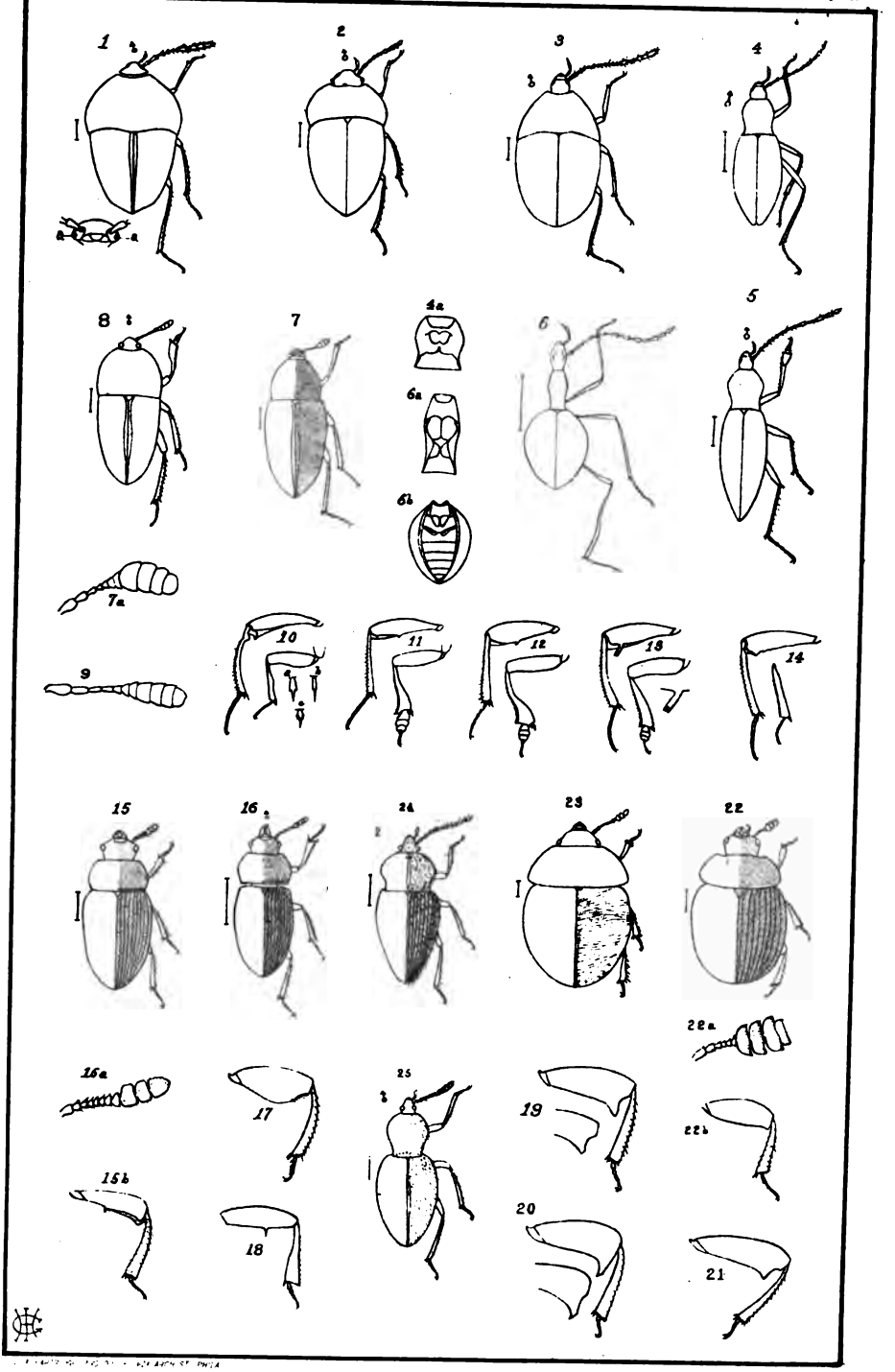

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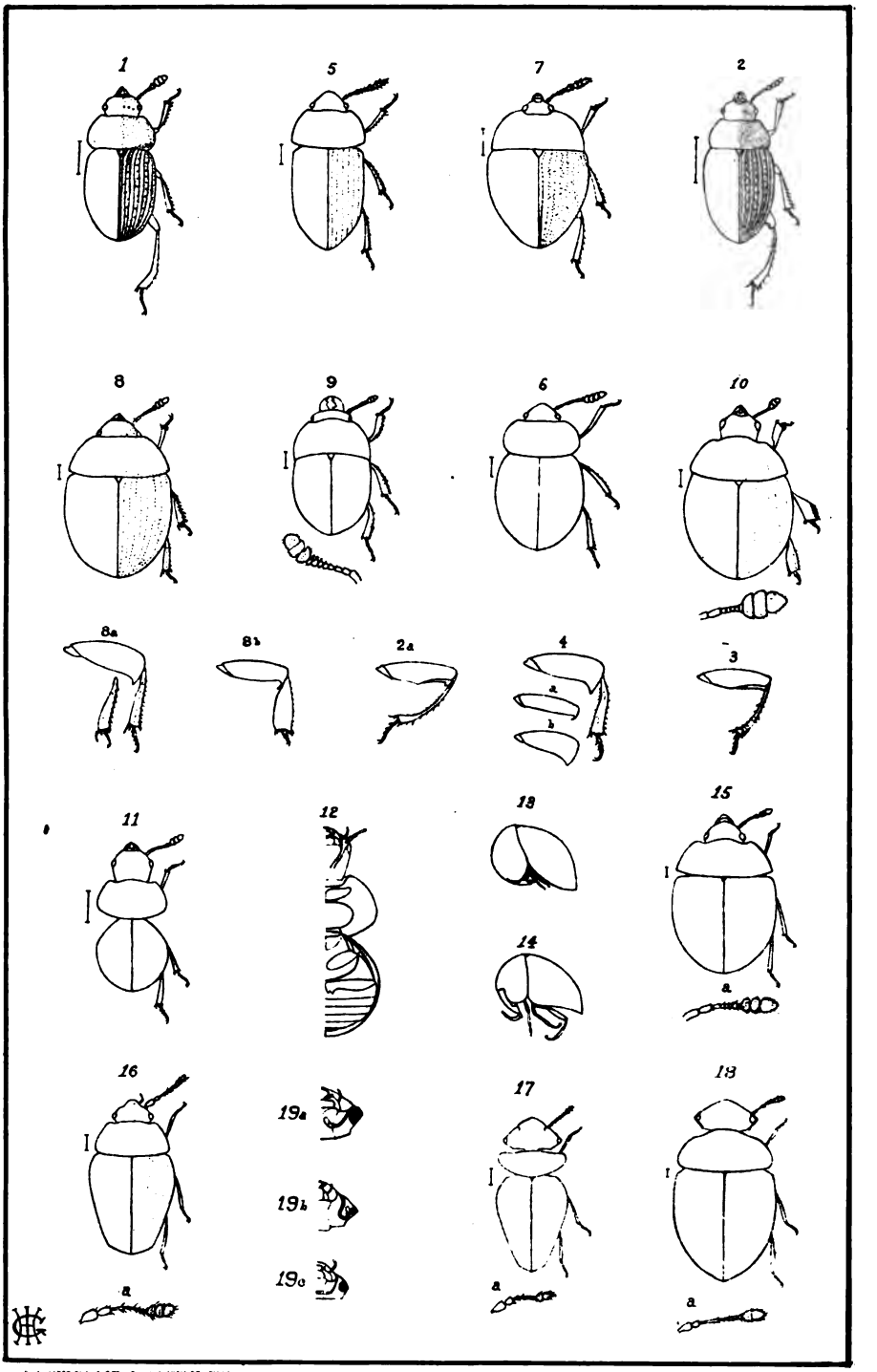

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